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United States Department of the Interior
Bureau of Land Management

Albuquerque District Office
Rio Puerco Resource Area

January 1991

EL MALPAIS
NATIONAL CONSERVATION AREA
GENERAL MANAGEMENT PLAN
FINAL

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The Bureau of Land Management...
is responsible for the balanced management of the public lands and resources and their various values so that they are considered in a combination that will best serve the needs of the American people. Management is based upon the principles of multiple use and sustained yeild, a combination of uses that takes into account the long-term needs of future generations for renewable and non-renewable resources. These resources include recreation, range, timber, minerals, watershed, fish and wildlife, wilderness, and natural, scenic, scientific, and cultural values.

BLM-NM-PT-91-002-4333

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
RIO PUERCO RESOURCE AREA
435 MONTANO N.E.
ALBUQUERQUE, NEW MEXICO 87107

TAKE PRIDE IN AMERICA

B351A (017)

January 1991

Dear Reader:

Congress established the El Malpais National Conservation Area and National Monument near Grants, New Mexico with the passage of Public Law 100-225 on December 31, 1987. The National Conservation Area contains about 262,600 acres and is managed by the Bureau of Land Management. The National Monument contains about 114,000 acres and is managed by the National Park Service.

In addition to designating these areas, Congress provided some direction as to how they should be managed, and mandated that a General Management Plan (GMP) be written for each. This document is the Final GMP for the El Malpais National Conservation Area (NCA). It should be used in conjunction with the Draft GMP issued in April 1990. Together, these documents constitute the management plan for the NCA and will guide its use for approximately the next 10 years. Plan implementation will begin 30 days after a notice of its availability is published in the Federal Register.

A limited number of copies of the draft plan is still available from the Bureau of Land Management at the above address. This is also the address to which you should direct your written comments.

Sincerely,

Albert Abee
Area Manager

GENERAL MANAGEMENT PLAN
EL MALPAIS NATIONAL CONSERVATION AREA

U.S. Department of the Interior
Bureau of Land Management
Albuquerque District
Rio Puerco Resource Area

January 1991

Recommended by: _____

Albert Abee
Area Manager, Rio Puerco Resource Area

Recommended by: _____

Robert T. Dale
District Manager, Albuquerque District

Approved by: _____

Larry L. Woodard
State Director, New Mexico

RECORD OF DECISION AND FINDING OF NO SIGNIFICANT IMPACT

DECISION

This Record of Decision concludes the environmental review of the El Malpais General Management Plan (GMP). The decision adopts the Proposed Action identified in the Draft GMP, as modified by this final plan. The specific management actions to be undertaken during the life of the plan are identified in Chapter 3. Implementation of the GMP will begin 30 days following the Federal Register notice that announces the availability of the Final GMP.

Five specific concerns emerged during the public review of the GMP. These include the BLM's recommendation on the wilderness status of the Chain of Craters Wilderness Study Unit, the proposed routing of a portion of the Continental Divide National Scenic Trail through the National Conservation Area (NCA), American Indian access to the wilderness areas contained within the NCA, grazing management practices, and facility placement in the NCA. Of these five concerns, two are not addressed in this decision record. These issues are the final wilderness recommendation for the Chain of Craters and the selection of a proposed route for the Continental Divide National Scenic Trail.

To conclude the wilderness review process for the Chain of Craters, a final legislative environmental impact statement is being prepared. This document is tentatively scheduled to be published in the spring of 1991. The final recommendation will reaffirm the non-wilderness recommendation contained in the Draft GMP. This recommendation will be made through the Secretary of the Interior to the President, followed by congressional action. Only Congress can either designate the area as wilderness or release it from the wilderness review process. Pending congressional action, the Chain of Craters is being managed under the BLM's Interim Management Policy and Guidelines for Lands Under Wilderness Review.

A portion of the route for the Continental Divide National Scenic Trail was proposed in the Rio Puerco Resource Management Plan and established as a Special Management Area. This route is located on the east side of the NCA. Through the public participation and scoping process for the GMP, an alternate route on the west side of the NCA was considered.

The GMP route through the west side of the NCA most accurately corresponds to the planning criteria identified in The National Trails System Act of 1968 (Public Law 90-543, as amended). The criteria suggest that the route be located as close as possible to the geographic Continental Divide, utilize existing trails and rights-of-way, identify potable water sources, provide opportunities for user enhancement, avoid sensitive environmental resources, meet recreation needs as a hiker/horseback trail, and meet trail development needs cost effectively.

To ensure proper coordination between local tribes and state and federal land management agencies, both routes will be evaluated in a multiagency environmental assessment (EA)/plan amendment. The portions of the Continental Divide National Scenic Trail to be considered in the EA/plan amendment are from Pie Town to Cuba, New Mexico. After the public participation and scoping process has been completed, the EA/plan amendment and Record of Decision will identify the selected route.

The public scoping meetings are tentatively scheduled to be held in January, 1991, and the Record of Decision is scheduled for release in August, 1991. A Federal Register Notice will complete the plan amendment process, revising all existing land use plans. As the lead agency for the Continental Divide National Scenic Trail Study, the U.S. Forest Service is required to submit a proposed trail route to Congress for formal designation.

Detailed discussions of all five concerns raised by the public are located in Chapter 4 of this Final GMP. Responses to individual comments raised by the public are included in Chapter 5.

In addition to the Proposed Action, a Low Change Alternative was addressed in the Draft GMP/EA. The Low Change Alternative contains only the minimum changes to the existing environment that would be necessary to meet the intent of the El Malpais legislation. In most cases, the Low Change Alternative is a reflection of existing conditions in the NCA and is a description of how the BLM is currently managing the NCA.

RATIONALE FOR DECISION

The El Malpais NCA was established to protect the area's unique and nationally significant resources for the benefit and enjoyment of present and future generations. These resources include the geological, archeological, ecological, cultural, scenic, scientific, and wilderness features that surround the lava flows near Grants, New Mexico. The legislative emphasis for the NCA is on conservation.

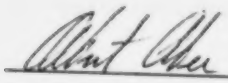
The GMP implements the legislative mandate by describing how the NCA will be managed both now and in the future. It outlines plans for visitor use, facility development, and management of the area's natural resources. The Proposed Action is considered by the BLM as best meeting the management objectives outlined by Congress for the El Malpais NCA. Implementation of the Proposed Action will not only protect the unique and nationally significant resources of the NCA, but will also lead to improvement in the quality and condition of those resources.

COMPLIANCE AND MONITORING

The BLM will effectively observe and respond to changes in the NCA's resource values as situations warrant. To make such observations and responses, the BLM is monitoring resource conditions. Monitoring involves observing, detecting, measuring, and recording the conditions of the natural resources in the NCA to ensure these resources are protected. The monitoring system and guidance to be applied to the NCA is located in Chapter 2 of this Final GMP.

FINDING OF NO SIGNIFICANT IMPACT

Based on the environmental analysis cited above, the BLM has concluded that this action will have no significant impact on the human environment. Therefore, the preparation of an environmental impact statement is not necessary.

Approved by: 

Albert Abee
Area Manager, Rio Puerco Resource Area
January 1991

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The land. The people.
They are in relation to each other.
We are in a family with each other.
The land has worked with us.
And the people have worked with it.
This is true:
Working for the land
and the people--it means life
and its continuity.
Working not just for the people,
but for the land too.
We are not alone in our life;
we cannot expect to be.
The land has given us our life,
and we must give life back to it.

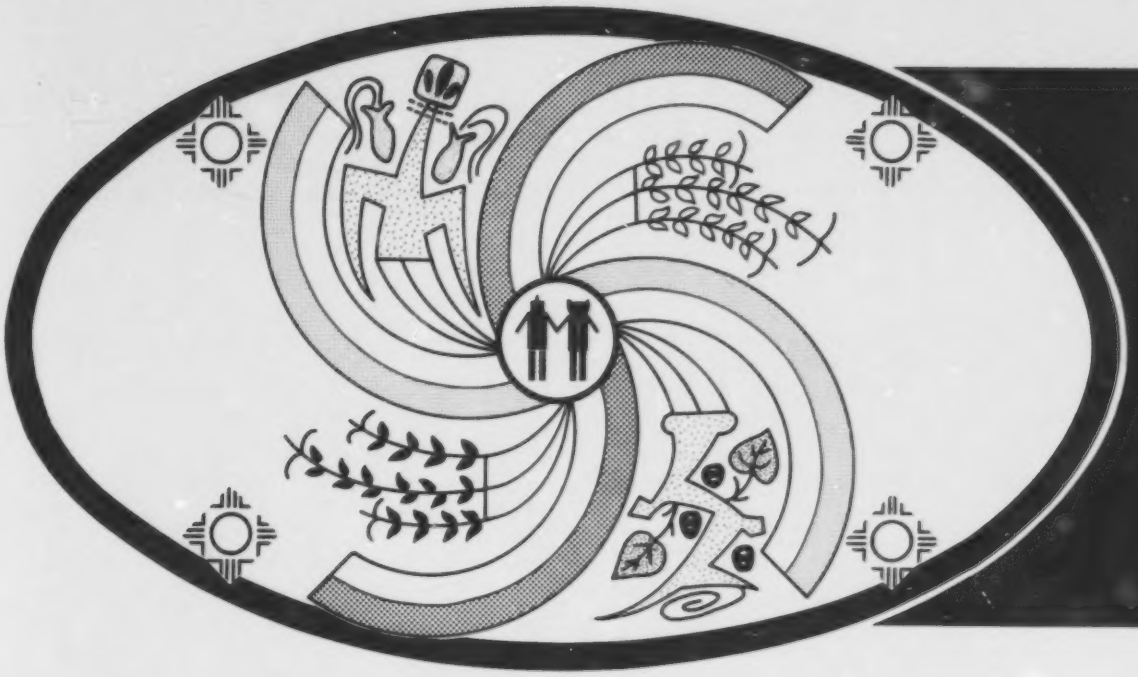
The land has worked for us
to give us life--
breathe and drink and eat from it
gratefully--
and we must work for it
to give it life. . . .

By working in this manner,
for the sake of the land and people
to be in vital relation
with each other,
we will have life,
and it will continue.

We have been told many things,
but we know this to be true:
the land and the people.

--From "We Have Been Told Many Things
But We Know This To Be True,"
by Simon Ortiz, Acoma Pueblo

(Used by permission of the author.)



CHAPTER 1

Introduction

Chapter 1
Introduction

PURPOSE OF THE PLAN

This document is the Final General Management Plan (GMP) for the El Malpais National Conservation Area (NCA), managed by the Bureau of Land Management (BLM). Together with the Draft GMP issued in April, 1990, this Final GMP is intended to guide the management of the 262,600-acre NCA for approximately the next 10 years (refer to Map 1-1 for the configuration and location of the NCA).

The El Malpais legislation (Public Law 100-225, signed on December 31, 1987) directs the BLM to manage the NCA in a way that protects the area's geological, archeological, ecological, cultural, scenic, scientific, and wilderness resources now and in the future. This GMP has been written to implement the overall intent of Congress as outlined in the El Malpais legislation. Because all site-specific actions needed to effectively manage the NCA cannot be anticipated or enumerated at this time, the GMP is a reference point on legislative intent for future management decisions about the NCA.

The following are the goals the BLM has for managing the NCA:

1. To manage the NCA under the principles of multiple use and protect the unique resources of the area, with special emphasis on the archeological resources, wilderness areas, wildlife habitat, American Indian uses, and visitor use and enjoyment.

2. To work cooperatively with local American Indian groups; the National Park Service; other federal, state, and local agencies; and the interested public for efficient and cost-effective management of the NCA and adjacent areas.

CONTENTS OF THIS DOCUMENT

The Draft GMP for the NCA was released for a 60-day comment period in April, 1990. Comments on the draft resulted in some modifications and additions, but the entire draft document is not being reprinted in this final. Together, the Draft and Final GMPs constitute the management plan for the NCA.

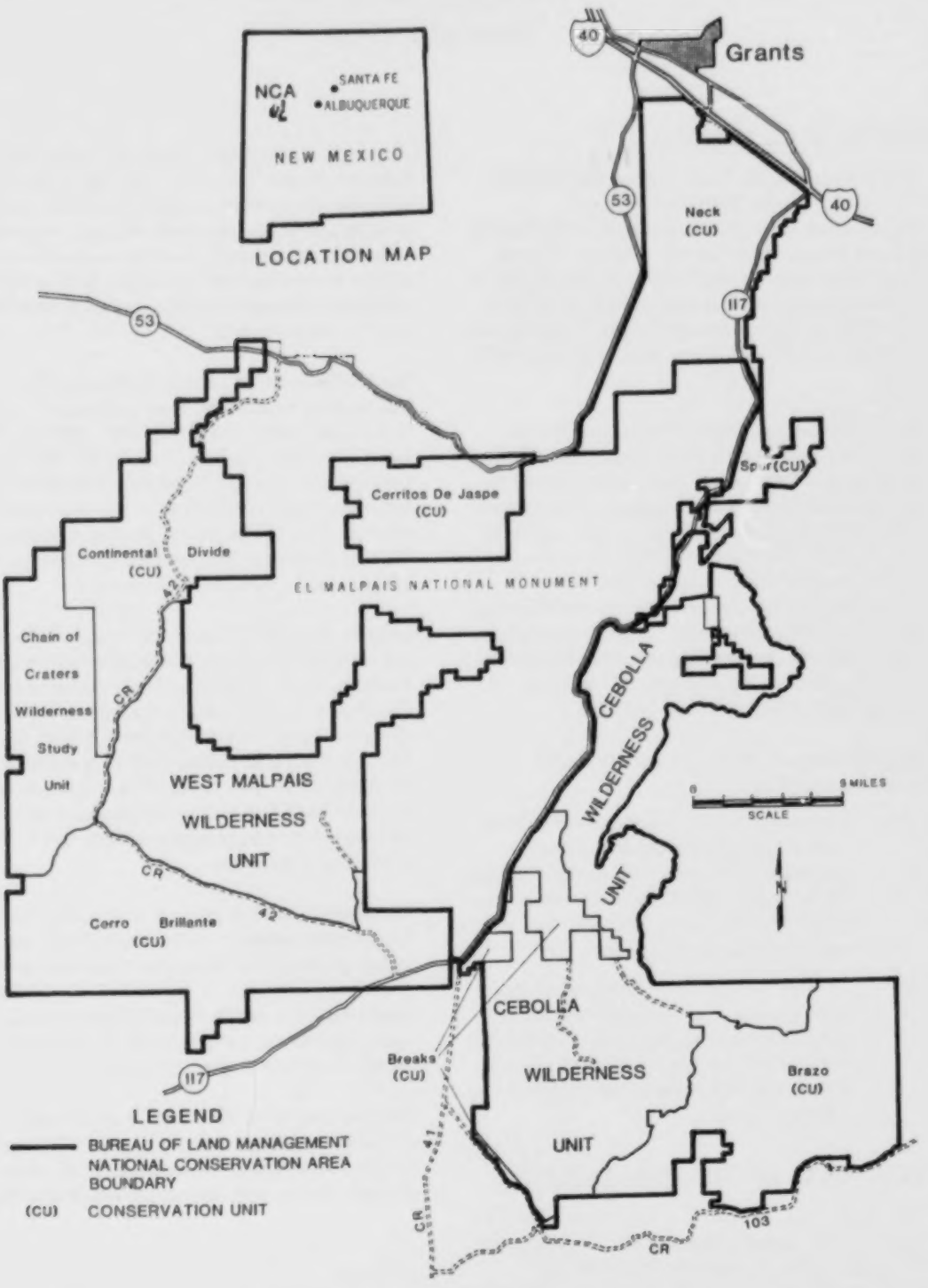
Chapter 2 of this Final GMP is the monitoring guidance for the NCA. To ensure the natural resources in the NCA are protected, their condition is being and will be observed, detected, measured, and recorded. Changes in resource condition beyond certain acceptable limits (many yet to be established) will trigger management intervention to alter the trend of these changes.

Specific tasks are planned to implement the management prescriptions and actions for the NCA that are outlined in the Draft GMP. These tasks are listed in Chapter 3 of this Final GMP. The tasks are grouped into nine initiatives: Administration, Public Outreach, Naturalness-Restoration, Recreation, Desired Plant Communities, Erosion Control, Wildlife Resources Management, Natural Resources Management, and Cultural Resources.

Chapter 4 contains discussions of several important and controversial concerns that have emerged during development of this GMP. These concerns include the BLM's recommendation on the wilderness status of the Chain of Craters Wilderness Study Unit, the location of a portion of the Continental Divide National Scenic Trail in the NCA, American Indian access to the wilderness areas contained within the NCA, grazing management practices, and facility placement in the NCA.

Throughout the development of this GMP, the BLM has involved members of the public, local American Indian groups, other government agencies, and private organizations. Chapter 5 of this Final GMP summarizes the results of public involvement, including comment letters on the Draft GMP and the BLM's responses to these comments.

The last chapter of this Final GMP, Chapter 6, contains corrections and modifications to the Draft GMP. Some pages are reprinted in full, while other changes involve only a word, phrase, or sentence.



MAP 1-1
EL MALPAIS NATIONAL CONSERVATION AREA AND NATIONAL MONUMENT

CHAPTER 2

Monitoring Guidance

Chapter 2
Monitoring Guidance

Section 1
General Introduction

Designation of El Malpais as a National Conservation Area (NCA) means the area's resources must be protected, while visitors and other public land users are allowed to access these resources for appropriate purposes. Such uses will inevitably cause some change in NCA resource conditions. Recreation use, crowding, littering, fire suppression, exotic species introduction, livestock grazing, and excessive regulation all can affect the values the NCA was designated to conserve.

The BLM will effectively observe and respond to changes in the NCA's resource values if the situation warrants. To make such observations and responses, the BLM is monitoring resource conditions.

Monitoring involves observing, detecting, measuring, and recording the conditions of the natural resources in the NCA to ensure these resources are protected.

In the NCA's two wilderness areas, human-caused changes are of special concern because natural conditions and a primitive recreation opportunity must prevail. If the changes in wilderness result from human use, a way to limit such changes will be identified. Management actions will then be initiated or modified as needed to ensure that changes in resource conditions are kept within the established limits.

Section 2
NCA Components to Be Monitored

In the Draft GMP, eight issues important in the NCA are discussed (Recreation, Wilderness, Facility Development, Wildlife Habitat, Range Management, Natural Resources, Cultural Resources, and American Indian Issues). In this chapter, certain components related to these issues are in focus because they are important indicators of change in the NCA. Resource components discussed in this chapter include Recreation Setting (both physical and social aspects), Vegetation (including fuelwoods), Wildlife Resources, Erosion, Water Quality, Air Quality and Visibility, and Cultural Resources.

Some of these components serve as indicators of change for several issues. An example is vegetation, which is important in managing range, wildlife habitat, watershed resources, cultural resources, and recreation, and which is used by local American Indians for numerous traditional and religious purposes. Considering the monitoring in the NCA in terms of these components allows an integrated, interdisciplinary approach to managing the NCA's resources, in addition to ensuring that each individual resource is protected.

Section 3
Conceptual Model for NCA Monitoring

As stated above, the components discussed in this chapter are Recreation Setting, Vegetation, Wildlife Resources, Erosion, Water Quality, Air Quality and Visibility, and Cultural Resources. Each of these components has features, and each feature has attributes.

For example, the cultural resources component in the NCA includes features such as rock art sites, historic homesteads, and prehistoric architectural sites. Attributes of the historic homestead feature that can be monitored include structural integrity, building material removal, and evidence of vandalism. Figure 2-1 is a pictorial example of this relationship between NCA components, features, and attributes.

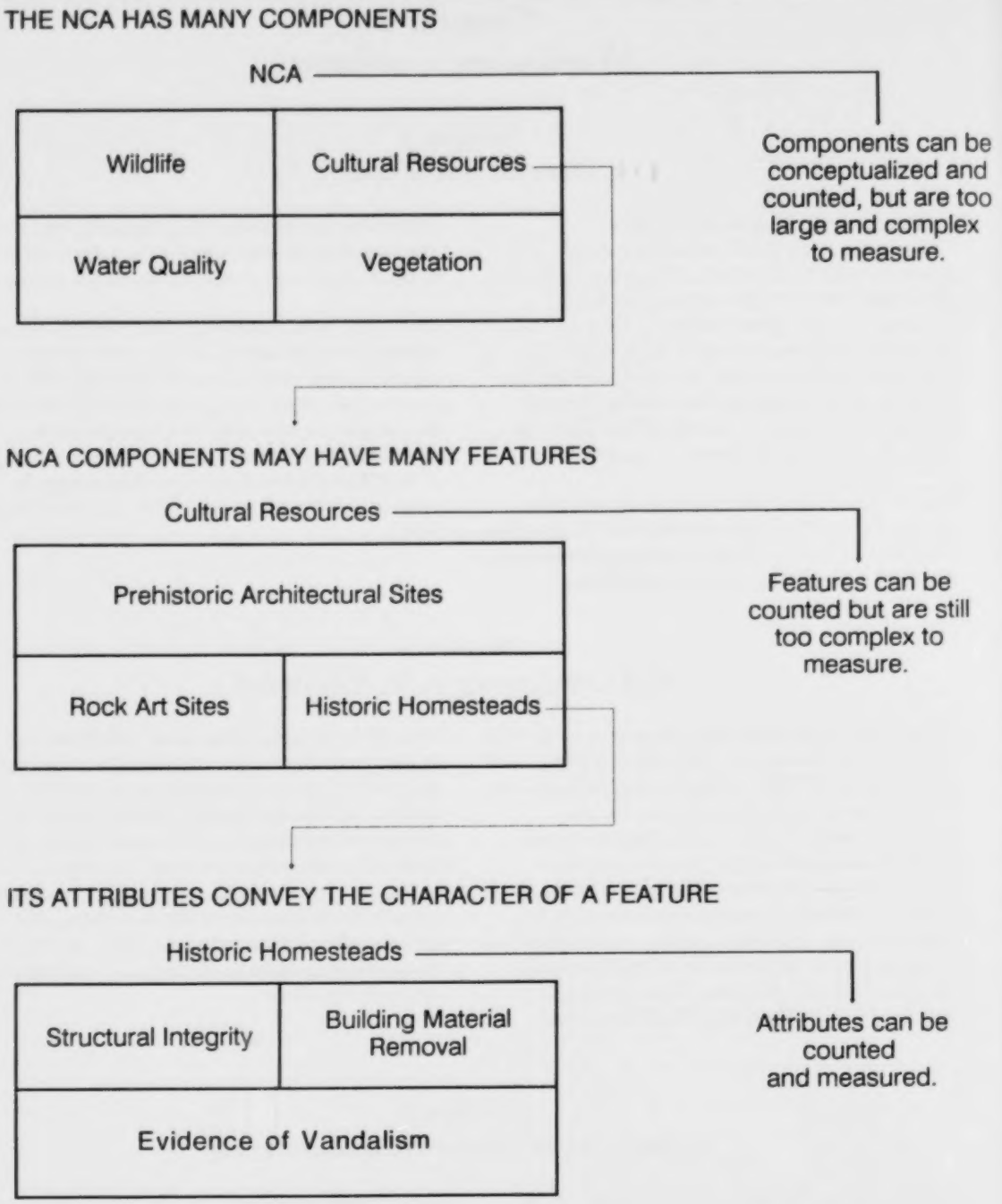

THE NCA HAS MANY COMPONENTS
NCA
Wildlife
Cultural Resources
Water Quality
Vegetation
Components can be conceptualized and counted, but are too large and complex to measure.
NCA COMPONENTS MAY HAVE MANY FEATURES
Cultural Resources
Prehistoric Architectural Sites
Rock Art Sites
Historic Homesteads
Features can be counted but are still too complex to measure.
ITS ATTRIBUTES CONVEY THE CHARACTER OF A FEATURE
Historic Homesteads
Structural Integrity
Building Material Removal
Evidence of Vandalism
Attributes can be counted and measured.

FIGURE 2-1

CONCEPTUAL MODEL FOR NCA MONITORING

Source: Adapted from Marlatt, et al. 1990.

In each group of attributes, certain ones are more sensitive to change than others and will thus reflect such change more readily. These sensitive attributes are called "selected indicators," and they are measurable. These selected indicators can be monitored accurately by measuring any changes in them over time as the result of human use (e.g., visitation, livestock grazing) and/or natural processes (e.g., climatic change, geologic forces). In Section 7 of this chapter, resource components, features, and selected indicators are shown in separate diagrams for each component.

Monitoring is intended to be flexible and responsive, to evolve over time as more information on the effects of human use on the NCA becomes available. As more is learned about the natural resources of the NCA, different indicators that more accurately reflect change may be chosen.

Section 4
NCA Monitoring System

The monitoring system for the NCA is discussed in a general way in Appendix J of the Draft GMP. The BLM is implementing a system called the "Limits of Acceptable Change (LAC)" System, which is still being developed. The Limits of Acceptable Change represent the maximum or minumum levels of change in a resource's condition that will be allowed to occur without management intervention to alter the trend of this change. As listed in the draft, the following are the steps to be taken in establishing and implementing the NCA's LAC monitoring system.

1. Describe the NCA's natural and human characteristics. Identify unique area attributes. Gather all available data.
2. Identify human activities that can impact conditions, as well as issues and concerns important in the NCA.
3. Define goals and management objectives that reflect the desired NCA conditions.
4. Select indicators of environmental and experiential NCA conditions.
5. Describe sampling and measurement methods for each indicator.
6. Specify standards for limits of acceptable change for each indicator.
7. Inventory indicator conditions and compare with standards.
8. Identify corrective management actions where conditions are below standards.

Steps 1 through 3 have been accomplished in large part in this GMP. Steps 4 through 8 will be performed as part of implementing the plan.

For some resource components, the LAC limits (standards) specified in Step 6 have already been established and/or data on existing conditions (Step 1) are available. For example, air and water quality standards have been established by national law; these have been adopted as LAC standards for the NCA. For other components [e.g., erosion, vegetation (desired plant communities)], more information on and analysis of the existing situation is needed before indicators can be selected and standards established.

Section 5
Monitoring Overview for the NCA

EXISTING MONITORING IN THE NCA

The BLM has managed and monitored El Malpais and vicinity since before the area became an NCA and a National Monument. One type of activity that will be part of the formal NCA monitoring program is now being provided by BLM personnel and volunteers who conduct random patrols and surveillance in the area. These personnel travel along road corridors and make observations at certain access locations (e.g., the South Narrows) and attractions (e.g., La Ventana Natural Arch).

Since NCA designation and establishment of the BLM Grants Field Station, the number of patrols has been increased. A BLM Law Enforcement Ranger patrols the NCA as part of the Rio Puerco Resource Area. (Note: The BLM has developed a list of

violations and penalties that apply to the NCA as well as to other public lands. This list is on file at the Rio Puerco Resource Area.)

Some monitoring has focused on protecting the cultural resources of the area. For some archaeological sites, recordation, stabilization, and photodocumentation have occurred. Some homestead sites have been occasionally monitored, with damage from vandalism and natural forces observed. Recently, volunteers have systematically recorded the location and condition of historic homesteads in the NCA.

Livestock grazing has also been monitored in the NCA. BLM staff specialists have established several sites where vegetation conditions are recorded. At some of these sites, livestock exclosures are maintained for several years at a time to observe changes in vegetation condition. Species composition and cover are measured to identify trends over the years. (Note: More specific information on vegetation monitoring conducted as part of the BLM's ongoing range management program can be found in the "Vegetation" subsection of Section 7 in this chapter and on file at the Rio Puerco Resource Area Office.) Theft of fuelwood, off-road vehicle use, and vandalism of range facilities have also been occasionally reported.

PHASE I MONITORING

Phase I monitoring in the NCA will complete Steps 4 through 6 of the LAC monitoring system described above. Existing monitoring of the NCA will be expanded and designed to respond to both the El Malpais legislation and the increased use that is expected as the result of NCA designation.

Phase I will involve collecting baseline data on the condition of some NCA resource components (Step 1 of the LAC system described above), as well as identifying indicators, methods, frequency, and locations for monitoring (Steps 4 and 5). In the case of vegetation, desired plant communities will be determined (refer to the discussion of vegetation in Section 7 of this chapter).

Phase I monitoring will also consist of integrating the existing patrol and surveillance efforts into a formal, systematic monitoring program for the NCA. Phase I will formalize and expand the existing patrols by linking them to plan objectives, ensuring consistency of data collection, and establishing a method of evaluating and using the collected data.

PHASE II MONITORING

The second phase of monitoring involves collecting the data required to measure change, and displaying this data so any needed management actions to correct the trend of change can be discussed and initiated (Steps 7 and 8 of the LAC system described above). The methods for collecting the required data will be those identified in Phase I (Step 5 of the LAC system).

Expanded monitoring may be required if Phase I monitoring reveals areas of concern. All monitoring that is implemented in Phase II will depend on the levels of funding and staff available.

Section 6
Data Storage and Analysis for NCA Monitoring

Data collected during monitoring must be kept in a form that will allow ready access and evaluation by resource managers and staff specialists. Storage, comparison, and accurate analysis of large amounts of data will be needed, including information on baseline resource condition, current resource condition, and LAC standards. At least two computerized information systems will be used for data collected in the NCA.

WILDLAND RESOURCE INFORMATION DATA SYSTEM

A computer program called the Wildland Resource Information Data System (WRIDS) has been developed by the BLM Wyoming State Office to monitor wilderness areas. This program is being adapted for use in the NCA. It is designed to store data collected during monitoring and to provide tabular and graphic reports (e.g., bar charts, graphs) of the data.

Monitoring packages for air and water quality are presently operational in WRIDS. A module is being developed for vegetation that will interface with the vegetation data base presently used in the Rio Puerco Resource Area. Additional modules will be developed for recreation, erosion, and cultural resources. WRIDS will be installed at the Grants Field Station, and Phase I monitoring data will be stored in the system for compilation and evaluation.

BIOPHYSICAL LAND UNITS AND THE GEOGRAPHIC INFORMATION SYSTEM

Another tool the BLM is using in monitoring the NCA is a computerized Geographic Information System (GIS). This system can accommodate and combine several layers of measurable geographic (spatial) data on the NCA. For example, GIS has been used to generate the maps and analysis of the Biophysical Land Units (BLUs) in the NCA (e.g., Map A in the Draft GMP and Map C in this Final GMP).

The BLUs and Change Detection

The basic level of geographic information contained in the BLUs is derived from existing vegetation/landcover, soils, terrain/landforms, and surface water. Using GIS, BLUs derived seasonally, annually, or every other year can be compared to each other to detect and evaluate change. How much time it took for a change to occur, the amount of area affected by the change, and the direction of change can all be tracked and accurately measured.

Geographic (spatial) analysis can be performed at different scales using GIS. Small-scale (regional) analysis can provide an initial level of evaluation of resource data; such an evaluation was done for the Draft GMP. At this scale, data processing is timely and cost-effective while delivering quality resource information to the resource specialist and land manager. However, larger scale (more site-specific) analyses can also be accomplished with GIS, allowing more explicit information to be derived for areas of concern.

Spatial change can be evaluated for its direction, rate, and effect on the diversity of an area. The diversity can be observed in the variety and numbers ("mix") of different BLUs. A trend from one mix of BLUs to another is an indication of change in an area on the ground. Using GIS, such a change can be displayed visually on a map and quantified numerically in acreages and percentages of the different BLUs.

When areas of change in the BLUs have been detected using GIS, other layers of information for a specific BLU can be overlaid and examined to determine what has caused the change. Is the change part of a natural ecological sequence? Is it related to a specific on-the-ground activity? For example, is the vegetation in an area changing in response to different management techniques employed to achieve a desired plant community? These kinds of questions can be addressed using GIS because data regarding change can be accurately quantified, accurately related spatially to specific activities or actions documented at certain locations, and evaluated by BLM managers and staff specialists to determine the reason for the change. GIS, along with other tools already in place, will be used to help the BLM measure whether the management prescriptions and actions developed in this GMP are having the desired effect on the NCA's resources.

Even more specific ways of detecting change can be developed if needed by relating additional data to a specific location or BLU. Tabular data such as rainfall amounts, number of wildlife sightings, or the location of roads and structures can be tied to BLU change. For example, vegetation transect data will be tied to information on land cover density that has been derived from satellite spectral data. This information will be valuable not only for the sites where the transect data was actually collected, but will also be available for extrapolation to the entire NCA at the same level of accuracy, making changes in vegetation density detectable anywhere in the NCA. (Note: For purposes of this GMP, "spectral data" is information about what exists on the ground--e.g., soils, vegetation--based on how these on-the-ground features reflect different wavelengths of light.)

Section 7
Monitoring Program for the NCA

RECREATION SETTING (PHYSICAL ASPECT)

Introduction

For monitoring the changes in natural resource conditions that can degrade resource-dependent recreation, several NCA locations have been identified. These locations now receive recreation use or are projected to receive such use within the next 5 years. These key monitoring locations are a representative sample of the range of recreational use in the NCA. They include developed recreation facilities, control points, easy access points along road corridors, trails and trailheads, informal campsites, and cultural and natural attractions (including water sources).

Features, Selected Indicators, and Monitoring Locations for Recreation Setting (Physical Aspect)

Figure 2-2 shows the features, selected indicators, and monitoring locations for the recreation setting component (physical aspect) in the NCA.

Phase I Monitoring

One type of activity that will become part of monitoring has been occurring in the NCA for several years. BLM staff and volunteers conduct random patrol and surveillance in the NCA along road corridors, at certain access locations (e.g., South Narrows), and at attractions (e.g., cultural sites). Previous efforts have concentrated on unauthorized ORV use, vandalism of cultural resource sites, and range facilities.

Phase I monitoring will consist of focusing the existing patrol efforts and integrating them into a standard monitoring program. The NCA has been divided into 14 patrol sectors (refer to Map 2-1) based on convenience and regularity of access. The sectors have been given a low, medium, or high priority rating based on what is currently known about existing recreation use. To establish the baseline condition of the NCA's recreation-related components, inventories and indicator data will be collected from key monitoring locations in each patrol sector by priority rating.

The sample size for Phase I monitoring wil
at a minimum, one key monitoring location
Recreation Opportunity Spectrum (ROS)
to the Draft GMP, Appendix F). In access
of the NCA, more than one key monitoring
will exist. Other locations in remote areas
NCA will serve as control points to compar
locations that receive more use and therefo
impacts and change. These remote location
in areas that are already being visited by BL
specialists for other purposes (e.g., water qu
studies, wildlife and/or range transects, cul
resources surveys).

The locations of selected indicators of physi
change will be identified, documented, and
on 1:24,000 topographic maps. Data collect
include (1) accessing and documenting natu
conditions and establishing photo points, (2)
photodocumentation of natural conditions a
monitoring locations, and (3) evaluating cha
returning to key monitoring locations on a r
basis. A standard form has been developed
staff at the Grants Field Station to ensure co
of data collection and decrease subjectivity.
form will be used at each key monitoring loc

Map data will be stored in the El Malpais G
base, but photodocumentation will continue
kept as a paper file. This file will also contai
recordation on topographc maps, and will be
organized by key monitoring locations.

Developed Recreation Facilities: Recreation
facilities concentrate visitors and allow them
more remote areas (e.g., the Cebolla Wilder
Unit). Although facilities are designed to dir
and therefore prevent damaging changes, son
impacts can occur. These impacts, which res
the concentration of visitors and the develop
social trails, include destruction of vegetation
development of bare ground, and compaction
If unchecked, these changes in the physical se
can accelerate erosion and degrade the recre
opportunity. (Note: "Social trails" are paths t
develop as the result of undirected visitor acc
attractive areas. Development of these paths
result in resource degradation.)

FIGURE 2-2

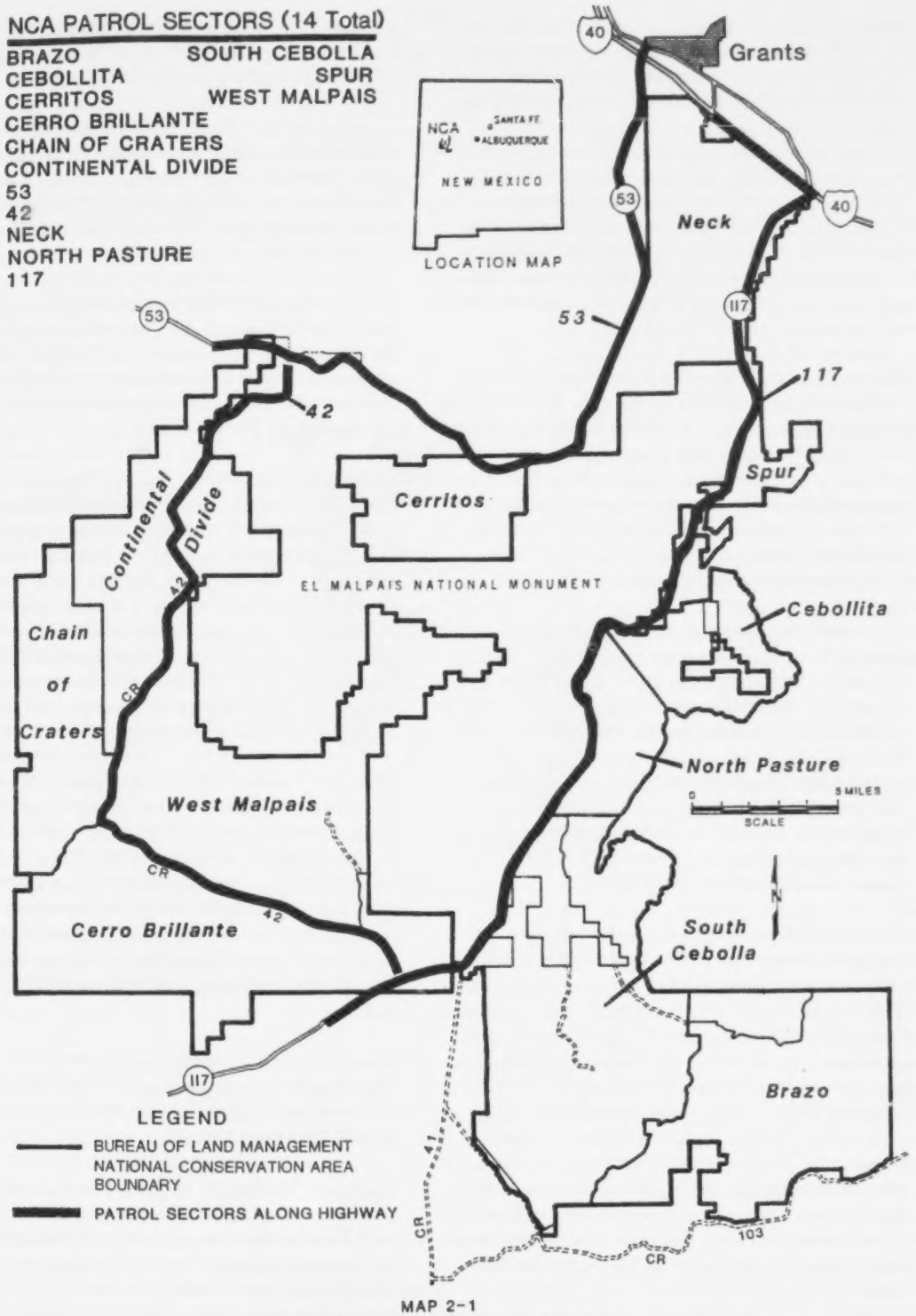
FEATURES, SELECTED INDICATORS, AND LOCATIONS
FOR MONITORING OF RECREATION SETTING (PHYSICAL ASPECT)

Features	Selected Indicators	Monitoring Locations
Developed Recreation Facilities	Area & distribution of trampled or disturbed vegetation that does not recover annually	La Ventana Natural Arch, Ranger Station, other recreation facilities constructed in future
	Number & distribution of social trails*	
Control Points	Percent bare ground	Remote locations
Road Corridors	Number of vehicle pullouts/mile w/ trampled vegetation & bare ground that do not recover annually	NM 117, CR 42
		Sand Canyon (cherry stem)
		Cebolla Canyon (cherry stem)
		West Malpais (cherry stem)
		Primitive roads in Brazo & Cerritos de Jaspe subunits
Trails and Trailheads	Trail width-to-depth ratio	Trail at La Ventana Natural Arch
		Interpretive trail at Ranger Station
	Number & distribution of social trails	Developed recreation facilities
		Number & condition of informal campsites
		Easy access points--informal trailheads

FIGURE 2-2 - CONCLUDED

Features	Selected Indicators	Monitoring Locations
Informal Campsites	Number & distribution of campsites	South Narrows
		La Ventana Natural Arch
	Area of exposed soil around campsites	Cerro Brillante roaded natural zone
		Chain of Craters semi-primitive motorized zone
	Number of fire rings	Cerro Rendija semi-primitive motorized zone
Cultural & Natural Attractions	Area of trampled vegetation around attractions that does not recover annually	Natural water sources
		Jug Tank
		Porcupine Lake (ephemeral)
	Number & distribution of social trails	Cultural sites in Cebolla WA
		Viewpoints (e.g., end of Cebollita Mesa)

Note: * "Social Trails" are paths that develop as the result of undirected visitor access to attractive areas. Development of these paths can result in resource degradation.



MAP 2-1

PATROL SECTORS IN THE
EL MALPAIS NATIONAL CONSERVATION AREA

When social trails appeared at La Ventana Natural Arch, the BLM and volunteers constructed a single trail to limit the level of impact resulting from recreation use. The development at La Ventana is the only existing recreation facility in the NCA. BLM Grants Field Station personnel conduct frequent patrols at the facility and will begin systematically collecting data to identify other changes in the facility's physical setting that are attributable to recreation use. Permanent photo points will be established to allow viewing of each structure, the parking lot, and the trail in three locations (one point will be 10 feet from the trailhead).

The facilities at La Ventana provide an opportunity for visitors to view or hike to the arch. However, they also provide access to the Cebolla Wilderness Unit. To monitor for social trail development in the wilderness unit, a permanent photo point that overlooks the entire area (not above the arch) will be established on the rim. If any social trails develop, the Limit of Acceptable Change standard will be exceeded and management action will be taken.

The monitoring program must allow flexibility for managers to initiate the most appropriate, effective action. For example, if too many people begin to access the Cebolla Wilderness Unit from La Ventana and social trails develop up the rim, visitors will be directed to the South Narrows trailhead by signing at La Ventana. The social trails will be rehabilitated and closed. Managers can initiate a mandatory wilderness permit system or increase on-the-ground presence at the location. These are a few examples of available management options.

The BLM Ranger Station is expected to be completed in summer of 1991 and will be the second key monitoring point for the recreation component in the NCA. Because soils and vegetation are impacted by concentration of use, the Ranger Station will be monitored for social trail development. Permanent photo points will be established to provide a complete visual record of the facilities, grounds, parking lot, and land in the immediate vicinity. Because the Ranger Station location has cultural sites, viewpoints, and other attractions for visitors to experience, more trail construction will be considered if social trails develop. The site is outside wilderness and provides a location for BLM to offer facility-based recreation.

The photo points established at these developed recreation sites will be visited every quarter and photos will be taken to document any change. This frequency of monitoring is possible and necessary because the facilities are highly accessible to visitors.

Road Corridors: Road corridors provide primary access for a variety of recreation activities and largely control recreation use patterns. The three main road corridors in the NCA are patrolled by BLM Grants Field Station personnel. Primitive and cherry-stemmed roads are also patrolled, but less frequently.

Visitors may pull off these road corridors to access more remote areas of the Conservation Unit and the NCA's two wilderness units. Such pullouts can create areas of trampled vegetation and soil compaction. Pullouts along road corridors will be located, photographed, and plotted on a map.

Locating and monitoring these pullouts will help identify any changes in recreation use patterns. This may be particularly helpful for identifying areas that currently receive little or no use but may be attractive to visitors as use increases. By monitoring road corridors, the BLM can assess if initial planning assumptions regarding the patterns of recreation use are correct; identify potential problem areas before degradation of the resource occurs; and modify designs, facilities, and/or the frequency of monitoring patrols to accommodate changes in use patterns.

The LAC standard for the development of pullouts in the NCA is no more than two pullouts per mile in roaded natural zones, and no more than one per mile in semi-primitive motorized zones. If one pullout in any mile of road develops and does not recover on an annual basis, the BLM will determine why it developed. If visitors are pulling off the road to access a particular attraction, management options can include developing a pullout and trails to channel visitors.

The frequency of monitoring these pullouts will be twice a year, in spring and fall. Pullouts documented will be monitored once during spring and returned to in the fall of that same year.

Trails and Trailheads: In general, trails are constructed for visitor safety, to protect livestock and wildlife, to direct visitors, and to prevent vegetation and soil compaction. The only constructed trail in the NCA is the trail to La Ventana Natural Arch. An interpretive trail will also be completed at the BLM Ranger Station.

Trail conditions in the NCA will be monitored to ensure that visitors continue to use constructed trails. If the trails are allowed to deteriorate, impacts to vegetation and soil will result because visitors are likely to leave the trails. The condition of these trails will be monitored four times a year as part of facility development maintenance. Maintenance needs will be identified and carried out before the trails deteriorate.

No trailheads have been constructed in the NCA. Some locations serving as informal trailheads are used to access the Cebolla and West Malpais wilderness units. These locations include the South Narrows, La Ventana Natural Arch, and the cherry-stemmed road in the West Malpais Wilderness Unit. Monitoring for recreation use at these easily accessible, informal trailheads will include documenting the condition of vegetation around the trailheads and monitoring for change. For example, visitors may use these areas for camping; this could result in trampled vegetation, soil compaction, and fire-ring development. LAC standards for campsite monitoring will be used and are discussed below.

Informal Campsites:
Campsite development creates trampled vegetation, soil compaction, bare ground, and other impacts to the natural environment. The BLM has no plans to develop formal campgrounds in the NCA. However, a few informal campsites are known to have developed from use.

Locating and documenting the number and condition of these informal sites is a first step in Phase I monitoring. A system will be set up to rate campsite condition during this initial inventory; each campsite location will be given a summary rating as to its condition. For example, how much bare ground exists, how large is the campsite, and are fire rings associated with it? These variables will help to identify the degree of impact at each site. By returning to these campsites, BLM staff can detect changes in campsite condition from year to year.

LAC standards for campsites are based on the number of campsites per 500-acre area and the degree of impact evident at the sites. The campsites will be categorized by ROS class. In roaded natural areas, no more than five campsites per 500 acres will be allowed to develop (two moderately impacted and three minimally impacted). In semi-primitive motorized areas, no more than three campsites per 500 acres will be allowed to develop (one moderately impacted and two minimally impacted). In primitive and semi-primitive non-motorized areas, only one minimally impacted campsite per 500 acres will be allowed to develop. The campsites will be monitored annually.

Cultural and Natural Attractions: Specific locations in the NCA that are attractive to visitors for recreation activities include cultural sites and natural features such as viewpoints and water sources. Specific cultural sites within the Cebolla Wilderness Unit are currently being visited by recreators. A few social trails have developed around these sites. Those sites close to primitive roads can be accessed for car camping.

Viewpoints (high places) are also attractive to some recreators. Access is determined by the individual skill level of the visitor, the amount of time available for the activity, and the nearby transportation routes. A few selected viewpoints will be monitored for social trail development and the effects of informal campsite development. These selected viewpoints have been chosen to represent a range of ROS

classes, and include the overlook on the mesa top at La Ventana Natural Arch, the Rim Walk (along NM 117 on the northwest side of the Cebolla Wilderness Unit), Cerro Brillante (or another location in the Chain of Craters Wilderness Study Unit), and the top of Cebollita Mesa.

Water sources located in less accessible areas will provide a contrast to the accessible locations in terms of use and impacts. These remote water sources will be monitored for impacts on vegetation and soil, providing information on the range of recreation impacts occurring in the NCA. Water quality will also be monitored at some locations.

A baseline inventory of natural conditions at these more remote locations will be done to monitor for change. Monitoring will provide information about how much change has occurred in the number and location of social trails, the amount of trampled vegetation and bare ground, and the degree of soil compaction.

The LAC standards and frequency of patrol for these natural and cultural attraction sites will be the same as those established for campsites and trailheads.

Phase II Monitoring

Phase II monitoring will be implemented as funding and personnel become available. This phase will allow additional key locations to be monitored. If recreation use of the NCA increases as expected and funding is available, additional recreation facilities will be developed. Additional key monitoring locations will include the visitor orientation kiosks, proposed trailheads, and any other interpretive site or recreation facility that is proposed in the future.

The number of control (remote) points will be expanded to include transect or quadrant plots designed specifically to gather data on the effects of recreation use on soil and vegetation. Studies will be done to collect data on soil compaction, species composition, and changes in species composition as a function of recreation use. Such studies will allow the BLM to assess site durability. The information collected will be used to identify areas where informal campsite development will have the least impact on the natural setting, and will assist the BLM in directing visitors to those areas.

Baseline data collected from vegetative studies will be compared to data from areas that have received recreation use. Such comparisons between data will help to establish the degree of change created by recreation use, because pristine sites in one ecotype can be contrasted with sites in similar ecotypes where camping or social trail development has occurred.

In Phase II, monitoring data will be computerized to provide rapid compilation and evaluation. A BLM-developed computer program used to monitor wilderness study areas in Wyoming (WRIDS) is being adapted for use in the NCA. The program incorporates packages for monitoring water and air quality, and is being expanded to include a package for vegetation monitoring. If the project and personnel continue to be funded, a package for recreation monitoring will also be developed.

Key monitoring locations will be entered in the GIS data base, enabling rapid retrieval of data that can be used by managers and staff specialists. For example, data about campsite condition will be available so information specialists can direct visitors.

RECREATION SETTING (SOCIAL ASPECT)

Introduction

The social aspect of monitoring the NCA's recreation setting involves collecting two types of data. Both types may be useful in monitoring to meet plan objectives for recreation and wilderness, although some information is difficult to collect.

First, basic information can be collected on use levels, patterns of use, and characteristics of use. This data can be gathered by counting visitors at developed recreation facilities, comparing and contrasting numbers from these facilities, and identifying the type and duration of activities taking place there. However, most of the NCA does not lend itself to this type of data collection because the recreation opportunities are not facility supported. The primary reason for monitoring the natural conditions at the locations discussed above is because such monitoring will help identify patterns and characteristics of use in a resource-dependent setting.

Visitor numbers do not necessarily correlate with the amount of impact to the natural and cultural resources. The behavior of visitors is more a measure of how much impact they have on a resource. However, numbers give the BLM a means of identifying necessary funding levels.

Second, information can be collected on the characteristics and behavior of visitors, and on their feelings about and reactions to management actions, policies, and regulations. This second type of information can be lumped into a broad category called "visitor perceptions."

Trash accumulation is a physical factor that may adversely impact visitor perceptions. A negative encounter with another person may result in a complaint about the conflict. The condition of facilities can also impact visitor perceptions. Agency actions create a negative, positive, or neutral impression on NCA visitors. Monitoring visitor perceptions involves identifying and documenting these physical and psychological indicators.

Both direct and indirect methods of monitoring can be used to measure factors that may affect visitor perceptions. The BLM will use methods such as visitor use surveys, suggestion forms, and observation by staff members to measure visitor perceptions. The wilderness attributes of naturalness and solitude are useful features for monitoring the social aspect of recreation because the sense of naturalness and solitude is a human perception. Seeing trash or hearing motor sounds may affect these wilderness attributes in some visitors' minds. By monitoring these physical and psychological factors, the BLM can indirectly measure visitor perceptions.

Features, Selected Indicators, and Monitoring Locations for Recreation Setting (Social Aspect)

Figure 2-3 shows the features, selected indicators, and monitoring locations for the recreation setting component (social aspect) in the NCA. The indicators selected to measure recreation-related perceptual factors have been adapted from indicators suggested by the Wilderness Research Center, Department of Wildland Recreation Management, University of Idaho (Merigliano 1987). They have been adapted to accommodate the monitoring needs of the Cebolla and West Malpais wilderness units and the Conservation Unit.

Phase I Monitoring

Visitor use numbers have been collected at the BLM El Malpais Information Center since July of 1988. A traffic counter was installed at the parking area at La Ventana Natural Arch in the fall of 1989. BLM staff members at the Grants Field Station and the Rio Puerco Resource Area respond to complaints or reports of conflict between user groups. Volunteers and BLM staff conduct random patrol and surveillance at La Ventana and along road corridors, where they note maintenance needs.

Phase I monitoring will consist of integrating these existing patrol and data collection efforts into a standard monitoring program. This phase will formalize and expand the existing system by linking monitoring to plan objectives, ensuring consistency of data collection, and establishing a method of evaluating and using the collected data.

When the La Ventana facilities and the BLM Ranger Station are completed, Phase I monitoring will begin. These two major facilities and the necessary signing must be maintained to ensure that NCA visitors are offered the highest quality experience possible. Phase I monitoring at these facilities will consist of systematic recordation of conflicts between and complaints from public user groups.

Visitor use data is collected at La Ventana by a traffic counter. This will be expanded by installing a counter for visitors who actually use the trail to the Arch. Information about NCA visitors is also collected at the BLM office in Grants. When the BLM Ranger Station is completed and opened to the public, visitor information will be gathered there.

BLM staff and volunteers conduct random patrol and surveillance at existing recreation facilities. These facilities include the La Ventana development, sites with entry signs, and sites with wilderness signs. Monitoring for other facility maintenance needs will be implemented as facilities are constructed in the NCA.

Building maintenance needs will be assessed on an annual basis. Vault toilets, interpretive signs, and trails will be monitored for maintenance needs on a twice-weekly basis during the high-use season.

Phase II Monitoring

Phase II monitoring will expand the collection of both types of information on the social aspect of the recreation setting in the NCA. As the BLM builds facilities that have been proposed in the GMP, additional locations for monitoring visitor numbers and use will be developed.

Self-registration by visitors at trailheads (including a solicitation for comments) will provide information on visitor use in more remote locations of the NCA.

FIGURE 2-3

FEATURES, SELECTED INDICATORS, AND LOCATIONS
FOR MONITORING OF RECREATION SETTING (SOCIAL ASPECT)

Features	Selected Indicators	Monitoring Locations
Visitor Population	Number of visitors per area	La Ventana Natural Arch BLM Ranger Station
	Number & size of groups per area	Cultural sites in Cebolla Wilderness Unit (frequency & size of conducted tours)
Naturalness	Quantity & distribution of litter	La Ventana Natural Arch BLM Ranger Station South Narrows Cultural sites used by visitors Wilderness areas Conservation Unit subunits w/private land
Solitude	Number of complaints regarding: Negative encounters between recreators/ranchers/landowners Airplane overflights Authorized vehicle use	Wilderness areas Along specified access routes & unspecified significant locations

Evaluating this information will help the BLM to gather information on visitor use and demographics.

Monitoring actions that require the development of questionnaires or other tools to measure visitor perceptions will be implemented as part of Phase II. Recreation research proposals to develop techniques and tools that quantify these social indicators will be encouraged if the Field Learning Center is developed (refer to Chapters 3 and 9, Draft GMP).

VEGETATION

Introduction

Vegetation monitoring provides information needed to make management decisions that will achieve and maintain healthy plant communities in the NCA. These communities must have the diversity to support the activities that the BLM manages in El Malpais.

Vegetation influences a variety of resource management programs, including range, wildlife habitat, watershed, recreation, wilderness, and cultural resources. The vegetation of the El Malpais NCA will be managed to support both livestock grazing and wildlife populations, and to allow American Indian traditional and religious uses to continue, as directed in the El Malpais legislation. This will require a coordinated monitoring and management program that will balance these uses and consider the needs of watershed management as well.

Phase I monitoring for vegetation in the NCA will involve current methods that are based on the BLM's allotment categorization criteria (refer to Appendix I in the Draft GMP). Vegetation is monitored by collecting information from range transects that are located in representative areas, called "key areas," of every pasture in the NCA. For the most part, each pasture that consists mainly of public land (especially those pastures in "I" category allotments) contains one key area with one transect. Pastures that need to be improved are monitored every year, while pastures that are in satisfactory condition are monitored every 1 to 5 years. Table 2-1 is an example of the kind of data collected from each transect.

Regional precipitation values are used to weight the transect information so vegetation data can be compared from year to year. The information collected from the transects located in the NCA is processed using standard analysis techniques. (Note: Further information on the BLM's existing range monitoring program and techniques is available at the Rio Puerco Resource Area Office.)

Phase II vegetation monitoring in the NCA will be based on desired plant communities. The focus of monitoring will shift from improving range condition to achieving and maintaining desired plant communities for a variety of uses.

BLM managers must decide how large areas of land should be managed using information gathered from transects that are small samples of those larger areas. A technique that could aid managers in making this type of decision regarding vegetative cover is using information available from Landsat satellite imagery. This imagery gives a picture of the entire NCA for a point in time, and can be tested for its correlation to transect data collected during the same year.

The BLM and the Technology Applications Center at the University of New Mexico are conducting a one-time study to see if the vegetative cover values derived from Landsat imagery can be correlated to the cover values based on transects. If the two sets of values can be correlated, BLM managers will have a tool that will allow them directly to see change throughout the NCA.

Fuelwood cutting areas (to supply dead and down wood for home use only) in the NCA will be delineated after the Final GMP is completed. These areas will be monitored to ensure they meet established vegetation management objectives.

Features, Selected Indicators, and Monitoring Locations for Vegetation

Figure 2-4 shows the features, selected indicators, and monitoring locations for the vegetation component in the NCA.

Phase I Monitoring

Phase I monitoring for vegetation is based on the existing BLM allotment categorization criteria (refer to Appendix I in the Draft GMP for an explanation). Range transects exist in key (representative) areas in pastures of all allotments that cover NCA lands. Other transects have been designated for wildlife habitat monitoring. A description of the types of transects run and the materials used to monitor them is available in BLM Technical Reference 4400-4 (USDI, BLM 1985; a copy is on file at the Rio Puerco Resource Area Office).

TABLE 2-1

EXAMPLE OF VEGETATION DATA GATHERED FROM A RANGE TRANSECT

Allotment: 203 (El Malpais) Pasture: NW14 Transect: 20301 Date: 10/19/88

Vegetation Type: I Habitat Type: 62

Plant Cover: 15.850
Litter: 13.700
Bare (calc): 70.450
Bare (obs): 74.900
Rock: .000

Species	Scientific Name	% Cover	Density	Frequency	Import. Value
BOGR	Bouteloua gracilis	8.000	6.00	.53	1.419
ANNU	Annuals	1.300	1.90	.17	.373
AGSM	Agropyron smithii	1.000	2.20	.16	.370
ARLU	Artemisia ludoviciana	2.000	.80	.08	.256
LICH	Lichen	1.600	.70	.09	.231
GUSA	Gutierrezia sarothrae	.800	.10	.07	.116
CHNA	Chrysothamnus nauseosus	.600	.30	.06	.111
LEER	Leucelene ericoides	.025	.30	.01	.034
ARLO	Aristida longiseta	.200	.10	.01	.029
SIHY	Sitanion hystrix	.100	.10	.01	.023
TECA	Tetradymia canescens	.100	.00	.01	.015
HYRI	Hymenoxys richardsonii	.100	.00	.01	.015
MUTO	Muhlenbergia torreyi	.025	.00	.01	.010
	Totals	15.850	12.50		3.000
	Diversity		1.58		

Note: Summary is for each transect by vegetation type.

FIGURE 2-4

FEATURES, SELECTED INDICATORS, AND LOCATIONS FOR VEGETATION MONITORING

Features	Selected Indicators	Monitoring Locations
Key Areas	Production - selected species	Transects in key areas of each allotment pasture (average 1 per pasture in "I" allotments)
	Density of selected species	
	Frequency of selected species	
	Change in species composition over time	
	Utilization of selected species	
Landsat Vegetation Classes	Change in distribution or area of classes	All BLUs
	Change in distribution or area of cover classes	
Desired Plant Communities	Distribution and density of threatened and endangered plant species	Indicator areas (see text)
	Distribution and density of exotic plant species	
	Distribution and density of key plant species for wildlife	
	Distribution and density of key forage species	
	Percent ground cover	
Fuelwoods	Change in distribution of pinon or juniper trees	BLUs C, D, H, J
	Erosion or increased bare ground in areas used for access or cutting	

Information collected from transects includes species density; species frequency; and changes in species composition, cover, and utilization by livestock. Information about plant production is also available. Transect information includes data on community structure, browse and cover species, and species important to livestock (refer to Table 2-1). Programs that require information from monitoring will provide funding for a coordinated monitoring effort.

The existing computer data base for the range management program in the Rio Puerco Resource Area allows transect information to be accessed by transect, pasture, allotment, or plant community. The data is easily available for any program manager who needs it. Range transects are run every 1 to 5 years, depending on the management category of the allotment in which they lie. For Phase I monitoring, vegetation in the NCA will meet LAC standards when the allotments are found to be in the "M" (Maintain) management category. (A more complete description of the management categories of the allotments located in the NCA may be found in Chapters 3, 4, 5, and Appendix I of the Draft GMP.)

The BLM has collected vegetative cover information from transects located in some Biophysical Land Units (BLUs). As stated previously, the BLM and the University of New Mexico are attempting to correlate this information with vegetative cover values derived from Landsat imagery. If this correlation is successful, GIS technology can be used to help managers determine how large an area a transect represents. Managers will be better able to decide the best locations for the transects, the number of transects, and the workmonths necessary to monitor these transects.

Areas that are appropriate for fuelwood cutting will be identified by surveys and marked clearly. The areas and access roads will be monitored to detect erosion and habitat changes. Fuelwood areas will meet LAC standards when habitat goals are reached, or if erosion damage to the area is detected. Areas meeting either of these two LAC standards will be retired from fuelwood cutting.

Phase II Monitoring

The Draft GMP calls for the development of desired plant communities in the NCA. These communities will be the basis for Phase II vegetation monitoring in the NCA. Desired plant communities will reflect the management goals and specific uses for areas in the NCA, as well as the concept of early, middle, and late vegetation succession stages.

Locations of special significance for wildlife, range management, cultural resources, woodland management, watershed, wilderness, recreation, and local American Indians will be delineated using the BLM's Geographic Information System (GIS). These locations will be chosen by an interdisciplinary team of BLM specialists, with input from Indian representatives.

"Indicator areas" will be determined by integrating information on these special locations with three other types of information: (1) baseline vegetation condition, (2) sites identified by following criteria found in BLM range management and wildlife habitat management handbooks, and (3) other criteria identified by specialists involved with determining the desired plant communities. These indicator areas will be mapped in GIS.

Once indicator areas are determined and the uses for each area are identified, the desired plant communities for the NCA will be identified. With input from local American Indian representatives, desired plant communities will be determined by a team of BLM range, wildlife, forestry, recreation, wilderness, and watershed personnel so that all land use issues related to vegetation can be addressed. The desired plant communities will reflect the existing and potential vegetation in each BLU, and the vegetative complex that the BLM will manage for, based on existing and potential land uses and climatic conditions. Indicator areas will be monitored using the techniques outlined for Phase I. Over time, LAC standards will be met when indicator areas attain the desired plant community identified for those areas.

Additional transects, if needed, will be established to monitor indicator areas. Periodically correlating transect data to Landsat imagery will help in detecting changes in vegetation and will lead to modification of the vegetation monitoring program, if needed. If the acreage of a vegetation type changes, the acreage(s) of the BLU(s) that contain(s) that vegetation type will also change. LAC standards will be established after initial studies are conducted. These standards will be established to limit the amount of change allowed in BLU acreage.

WILDLIFE RESOURCES

Introduction

The NCA contains numerous wildlife species, in part because of its varied terrain and vegetation, and because of the complex habitat pattern this variety forms. Monitoring will detect changes in habitat, special use areas, and population sizes of certain species. Information obtained from monitoring will deter loss of habitat and protect the diversity of wildlife that exists in the NCA.

Special use areas within the NCA that are important to wildlife and vulnerable to change or impacts from humans will be identified. Initial inventories will be done to identify these areas and will provide the basis for monitoring to determine changes in the size of the areas or their use patterns. Patrols in the NCA as part of ongoing BLM program work and "Operation Respect" will continue and will help to deter impacts to habitats through inappropriate uses.

Two types of special use areas exist in the NCA, special habitats and unique habitats. Special habitats serve a wildlife function that is not provided by a BLU or one of its successional stages. Special habitats include riparian zones, snags, dead and down woody material, and edges. These habitats are biological in nature and can be created or altered by certain management techniques. They are a renewable resource.

Unique habitats serve a wildlife function that is not provided by a BLU, one of its successional stages, or special habitats. Unique habitats include such features as caves, cliffs, lava flows, sand dunes, and talus slopes. They are formed by geologic processes, are not readily created by humans, and constitute a nonrenewable resource.

Vegetation monitoring methods described earlier in this chapter will provide information about the plant communities important to wildlife species, as well as data about the forage and browse available for certain species. Changes detected in vegetation will trigger changes in management actions to deter the loss of significant wildlife habitat.

Features, Selected Indicators, and Monitoring Locations for Wildlife Resources

Figure 2-5 shows the features, selected indicators, and monitoring locations for the wildlife resources component in the NCA.

Phase I Monitoring

Volunteers monitor bird species in the NCA; these monitoring programs will continue. Volunteer programs provide an accurate and inexpensive means of monitoring bird species.

A roadside raptor survey is conducted by qualified bird watchers each summer during the nesting season. The location of any raptor or raptor nest sighted is recorded; these sightings will be placed in a data base in GIS. The movements and numbers of raptors along NM 117 from year to year will be compared and patterns determined. A similar survey will be conducted on the west side of the NCA where other habitat is attractive to different species of raptors.

The elevation and habitats common in the NCA make it an important wintering ground for many bird species. A Christmas count of winter birds is conducted by the Audubon Society in the NCA each winter; this count provides information about changes in wintering species composition and densities over time.

Populations of game species are monitored by the New Mexico Department of Game and Fish (NMDG&F) at sporadic intervals. NMDG&F monitoring includes aerial surveys of deer and antelope herds, checks of animals taken during hunting season, samples taken to determine the age and sex of certain species, and surveys sent to hunters. The figures from these surveys are made available to the BLM.

The BLM will coordinate with the NMDG&F to conduct surveys of special use wildlife areas in the NCA. Such surveys will identify both special habitats,

FIGURE 2-5

FEATURES, SELECTED INDICATORS, AND LOCATIONS FOR WILDLIFE RESOURCES MONITORING

Features	Selected Indicators	Monitoring Locations
Special Use Areas	Distribution & size of special & unique wildlife habitats	To be identified
	Distribution & size of breeding areas for certain species	
	Distribution & size of birthing areas for certain species	
	Distribution & size of winter use areas for certain species	
	Distribution & density of threatened & endangered species	
Populations	Trend in populations of species sensitive to humans	Wildlife transects
	Trend in populations sensitive to habitat change	
	Yearly counts of game species	NMDG&F surveys
	Counts of recruitment in game species	
	Christmas count of winter birds	Various other surveys
	Summer raptor survey	
	Location & number of species seen by staff	
	Location & number of species reported by visitors	

which are renewable, and unique habitats, which are nonrenewable.

Changes in management actions will be triggered by significant changes in population sizes. NMDG&F survey data will also be used to initiate management changes where deemed appropriate, in cooperation with the NMDG&F. A more complete description of possible management actions is found in Chapter 11 of the Draft GMP, the Wildlife Resources Management Plan.

Phase II Monitoring

Some small mammal species are sensitive to changes in habitat, while others are sensitive to interaction with humans. Some bird species are very sensitive environmental indicators. Changes in populations of these species will be used as indicators of changes in their habitats.

Wildlife transects were established in the NCA in 1979. Data collected from these transects includes information on species composition for mammals, birds, and reptiles. [Note: The species information is available in an IHICS computer data base (refer to the glossary)]. Birds were identified and recorded using a modified Emlin method (refer to the glossary). Small mammals were collected by snaptraps set at 100 points along 1-kilometer transect lines. Information from these transects has been entered into the GIS data base.

These transects will be surveyed in 1991 and the data gathered will be compared with the 1979 data. Thereafter, the transects will be surveyed every 5 to 10 years so information on changes in species diversity and composition is available.

Special use areas (including special, or renewable, habitat and unique, or non-renewable, habitat) will be monitored for change. These areas important to wildlife in the NCA will be determined by survey with the NMDG&F in Phase I.

EROSION

Introduction

A detailed inventory of erosion potential has not been conducted for the entire NCA, but certain areas have been surveyed and are known to have soils and terrain that are highly susceptible to air or water erosion. These areas have been identified as BLUs B and I (refer to Map A in the Draft GMP and Map C in this Final GMP).

A watershed rehabilitation strategy was written for the Rio Puerco Resource Area in 1988. This document outlines policy and rehabilitation strategies for the entire resource area, which includes the El Malpais NCA. The Cebolla Wilderness Unit and the Brazo subunit of the Conservation Unit contain drainage basins that are causing site deterioration and sedimentation problems.

An inventory will be made of all erosion control efforts identified in the various plans written for the NCA (such as the Allotment Management Plans for grazing). An activity plan will be written and implemented for each watershed in the NCA. Erosion control projects proposed in each activity plan will be developed and used to institute a coordinated program that will meet watershed needs and protect the resources important in the NCA.

Erosion control monitoring is designed to detect changes in erosion patterns that can negatively affect range, wildlife habitat, cultural resources, natural resources, and/or recreation. Erosion monitoring locations will include areas such as BLUs B and I where soils are erodible and natural drainages occur, and sites where cultural, historical, recreation, range, or wildlife resources are threatened because of erosion due to human use (including livestock grazing). Vegetation monitoring that detects changes in cover can also deter erosion and will be considered as part of the NCA's coordinated erosion control monitoring program.

Monitoring will detect the appearance of bare ground in areas formerly vegetated, or an increase in the amount of exposed ground; the appearance of gullying, or change in the size of an existing gully; the appearance of a silt fan or the change in size or shape of an existing fan; and changes in existing erosion control structures. Changes in gullying or bare ground are being monitored by range management and cultural resources personnel. Bare ground is recorded on range management transects, so change will be monitored at those sites. Change in bare ground will also be monitored at selected recreation sites. This type of change can also be detected NCA-wide using Landsat imagery. Additional monitoring sites and techniques will be identified in the watershed activity plans developed for the NCA.

If signs of erosion become apparent or worsen to the Limits of Acceptable Change established in the watershed activity plans, appropriate control methods will be triggered. Erosion control methods will reflect the seriousness of the erosion problem and the resources threatened.

Features, Selected Indicators, and Monitoring Locations for Erosion

Figure 2-6 shows the features, selected indicators, and monitoring locations for the erosion component in the NCA.

Phase I Monitoring

BLM staff specialists visit known cultural resources, range improvements (including erosion control structures), and special habitat features as part of their regular workload. Law enforcement and other personnel patrol roads and wilderness boundaries in the NCA. Visible changes identified by personnel that can potentially lead to erosion problems will be reported to the BLM Grants Field Station. Reports will trigger inspection by staff specialists, and managers will initiate control measures if deemed necessary.

Staff visits will also be initiated by comments from the public. Visitors frequently comment to Grants Field Station personnel about their experiences in the NCA, and these comments will increase in number when the BLM Ranger Station is open. Information gathered from these visitors will help to identify areas with potential erosion problems.

Yearly visits will be made to sites where the potential for erosion problems has been identified as described above. These visits will most often be part of ongoing work in the NCA conducted by staff specialists. Visits may consist of a visual drive-by inspection by any BLM personnel or may be part of site visits by range, wildlife, watershed, recreation, or cultural resources staff specialists as part of their regular monitoring activities.

Maps will be generated by GIS that will locate all drainages in BLUs B and I, and roads or trails closest to them. Specialists using GIS will also locate cultural, historical, or recreation sites that are on sensitive soils and slopes, and the roads or trails closest to them.

Phase II Monitoring

An inventory of the NCA will be conducted and a data base built. The drainages in BLUs B and I will be inventoried, and priorities set for erosion control strategies. Drainages that will be inventoried include Cebolla, Cebolleta, Brazo, and Armijo canyons. Smaller drainages located in the Cebolla Wilderness Unit such as Lobo Canyon and Sand Canyon also will be inventoried. Additional sensitive terrain, if any, will be identified during the inventory.

The data base will include areas that require monitoring, with the erosion potential for these areas. Sites identified as having potential problems will be regularly monitored for change.

A data base of all of the erosion control projects proposed for the NCA will allow the BLM Grants Field Station staff to develop a coordinated control program that will reflect the most cost-effective means of protecting the watersheds and the resources found in them. Appropriate controls will be instituted if erosion exceeds the established standards for Limits of Acceptable Change.

The soils and topography of the Cebolla Wilderness Unit undergo natural cut-and-fill erosion processes. In wilderness settings, only those erosive processes attributable to human uses will be controlled.

Research proposals to determine the proportion of the erosion in the NCA caused by human practices will be encouraged at the Field Learning Center if it is developed. Such proposals will help to isolate the natural variables from the human-caused variables that contribute to cut-and-fill erosion.

WATER QUALITY

Introduction

Surface and ground water quality in the NCA will be monitored to ensure a safe water supply for the public. This monitoring will include the well at the BLM Ranger Station. Surface waters that receive visitor use because of their scenic values will be tested. Water sources that are unsafe for human use will be identified.

FIGURE 2-6

FEATURES, SELECTED INDICATORS, AND LOCATIONS FOR EROSION MONITORING

Features	Selected Indicators	Monitoring Locations
Special Use Sites	Gully development	Dittert Site, Pinole Site, Lobo Canyon, Aldridge Panel
	Change in ground cover	
	Percent of siltation	Campsites, trails
Existing Erosion Control Structures	Change in exposed bare soil	Established locations
	Depth of siltation	
	Signs of breaching	
BLUs	Change in sparse-bare vegetation class	BLUs B & I
	Change in selected drainages	Arroyos & drainages

Features, Selected Indicators, and Monitoring Locations for Water Quality

Figure 2-7 shows the features, selected indicators, and monitoring locations for the water quality component in the NCA.

Phase I Monitoring

A water well has been developed for public use at the BLM Ranger Station. The BLM will monitor this water for chemical and biological contents that can impact public health or affect the palatability of the water for drinking. The well water will be collected for testing before the Ranger Station opens and every month thereafter to determine any change in bacteriological content. Chemical content will be tested less frequently, as it is not expected to change.

An initial survey of water quality will be done at selected springs and earthen tanks. This survey will provide a baseline indicator of water quality at these sources. If some surface water is later identified as a common focal point for recreators, that water source will be monitored to determine potential threats to public health.

Water sample collection will follow recommended state and federal procedures. Water chemistry to be tested includes ion concentrations (sodium, calcium, potassium, magnesium, chlorine, sulfates, nitrates, and ammonium), pH, alkalinity, total suspended solids, and coliform bacteria. Samples of water collected will be tested to determine if they meet state and federal public health standards. Water quality will meet the BLM's LAC standards if it does not exceed state or federal drinking water quality standards.

Phase II Monitoring

Most surface waters located in the NCA have been developed for wildlife or livestock and are not appropriate for human use. However, springs and some earthen tanks located in the Cebolla Wilderness Unit and the Brazo subunit of the Conservation Unit are potentially attractive to recreators for camping or day use because of the scenic qualities near them.

Yearly monitoring of the number of campsites or other signs of use that develop near springs or earthen tanks will provide information about recreation use in the vicinity, and about the potential for health hazards from improper use of these water sources. BLM range and wildlife staff specialists will visit these locations during their field seasons.

The number of campsites that is allowable under LAC standards will be determined through initial surveys for campsites and the quality of the water near them. Water quality will meet LAC standards if it does not exceed state or federal water quality standards. If natural waters exceed LAC standards, recreation use of the surrounding area(s) will be restricted or the waters will be posted with signs warning of health hazards from their use.

AIR QUALITY AND VISIBILITY

Introduction

The El Malpais NCA contains two wilderness areas and a wilderness study area located within its boundaries. Federal law requires protection of the airshed over any wilderness, and the NCA's terrain makes changes in visibility obvious. The NCA presently meets federal Class II airshed standards.

The NCA is being considered as part of a national global monitoring program. An air quality monitoring station for this program will be installed in the NCA. This station will meet the BLM's management objective for monitoring air quality and visibility in El Malpais in cooperation with the National Park Service.

Features, Selected Indicators, and Monitoring Locations for Air Quality and Visibility

Figure 2-8 shows the features, selected indicators, and locations for monitoring air quality and visibility in the NCA.

Phase I Monitoring

Air quality and visibility will be monitored at a self-contained station located in the northeastern part of the NCA, within the boundaries of the Cebolla Wilderness Unit. This location will allow the monitoring of air pollutants crossing the NCA along prevailing winds. Wet and dry deposition, meteorology (temperature, relative humidity, and precipitation), and criteria pollutants (particulates, ozone, sulfates, and nitrates) will be monitored. Air quality will meet LAC standards if it does not exceed federal or state air quality standards for criteria pollutants.

FIGURE 2-7

FEATURES, SELECTED INDICATORS, AND LOCATIONS FOR WATER QUALITY MONITORING

Features	Selected Indicators	Monitoring Locations
Ground Water Quality	pH, conductivity, alkalinity	Ranger Station well
	Anion/cation balance	
	Nutrient concentration	
	Bacteria, pathogen scan	
Surface Water Quality	Number of campsites w/in 100 ft of certain developed waters	Natural springs, Jug Tank, Porcupine Lake (ephemeral)
	Field pH, conductivity, dissolved oxygen, temperature	Other sites to be determined by campsite survey
	Biological oxygen demand, chemical oxygen demand, fecal coliform/streptococcus counts	
	Lab pH, alkalinity	
	Nutrient concentration	
	Anion/cation balance	

FIGURE 2-8

FEATURES, SELECTED INDICATORS, AND LOCATIONS FOR AIR QUALITY AND VISIBILITY MONITORING

Features	Selected Indicators	Monitoring Locations
Air Quality	Ambient concentrations of particulates, O_3, SO_4, NO_3, NH_4, pH	Mobile station to be located in Cebolla Wilderness Unit
	Rain chemistry	
	Metrology	
Visibility	Visual resources management units	All BLUs
	Haze, standard visibility range	Mobile station to be located in Cebolla Wilderness Unit

Visibility will be monitored by automatically photographing a selected point at specific time intervals. Changes to viewsheds in the NCA will be monitored using the BLM's visual resource management techniques, and by identifying viewsheds using GIS. LAC standards for visibility will be met if measurements fall within federal standard visibility ranges.

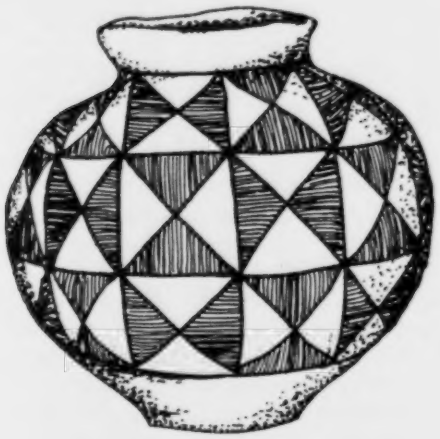
Phase II Monitoring

Phase II monitoring will continue data collection from the air quality station.

CULTURAL RESOURCES

Introduction

Separate monitoring programs for cultural resources are necessary to address three different situations in the NCA. First, sites exist that are of unusual importance or are threatened by very specific, active processes. These sites warrant a high level of attention and will become the subject of formal annual photomonitoring.



Second, the general problem of illegal excavation continues, which can potentially threaten a very large number of archeological sites in El Malpais. Part of the NCA monitoring program will allow recognition of emerging problems and effective response. Finally, increased visitation will inevitably result in increasing loss of surface artifacts. The third aspect of the NCA monitoring program will allow the BLM to monitor the effects of illegal surface collection and take timely action to prevent or mitigate these effects.

A theme common to all three monitoring approaches is the need to continue to gather basic information about the nature and distribution of cultural resources in the NCA. The monitoring program outlined in this section will undoubtedly be adjusted as the BLM acquires more complete information about cultural resources distribution, vulnerability, and the factors that bring about resource deterioration. These monitoring approaches supplement and elaborate upon a broader Cultural Resource Patrol and Surveillance Plan that has been written for the Rio Puerco Resource Area (USDI, BLM 1988).

Features, Selected Indicators, and Monitoring Locations for Cultural Resources

Figure 2-9 shows the features, selected indicators, and monitoring locations for the cultural resources component in the NCA.

Phase I Monitoring

Photomonitoring: The large number of sites in the NCA precludes systematic monitoring of each individual cultural property. However, it is possible to single out some of the most important NCA sites for systematic monitoring, and to identify sites that need more active monitoring because they are threatened by specific active processes.

These include buried sites and prehistoric architectural sites that are particularly vulnerable to subsurface disturbance through pothunting and/or gully erosion. Prehistoric architectural sites that are subject to the loss of structural integrity and major rock art panels are also included in this category. Finally, some historic homesteads that are vulnerable to the loss of structural integrity and theft warrant systematic monitoring.

For these sites, a site map will be drawn and a series of 1 to 12 formal photomonitoring points will be established. These points will be recorded on the site map and marked on location by semipermanent datum points. Each year BLM personnel will return to these same points and take identical photographs, documenting changes from year to year. Photographs will be printed, labeled, mounted, and filed in three-ring binders.

This strategy is very effective in identifying small incremental changes in architecture, erosion of the rock surface at rock art sites, or natural decay of historic homesteads. It also provides a good

FIGURE 2-9

FEATURES, SELECTED INDICATORS, AND LOCATIONS FOR MONITORING OF CULTURAL RESOURCES

Features	Selected Indicators	Monitoring Locations
Surficial Artifact Scatters	Artifact removal Artifact movement	(None)
Prehistoric Buried Sites w/o Standing Architecture	Subsurface disturbance Artifact removal Artifact movement	Arroyo Ruin Dittert Community Sites
Prehistoric Architectural Sites	Structural integrity Subsurface disturbance Artifact removal Artifact movement	Dittert Site Oak Tree Site Pinole Site
Rock Art Sites	Rock surface condition Outcrop stability Graffiti	Aldridge Panel Lobo Canyon Panel Citadel Panel
Historic Homesteads	Structural integrity Artifact/building material removal Evidence of vandalism	(Specific sites to be identified after completion of Homestead Study)

photographic record in the event of a catastrophic loss, such as major erosion, burning of a homestead, or massive collapse of an entire outcrop at rock art sites. Its primary disadvantage is that it is expensive and time consuming. Therefore, annual photomonitoring will be limited to the most important and vulnerable sites.

Several sites will be included in the photomonitoring program because they are unusual, important, and/or they represent significant BLM investments in stabilization. These include three prehistoric architectural sites, the Dittert Site, the Oak Tree Site, and the Pinole Site. Another buried site, the Arroyo Ruin, will be included because it is threatened by ongoing erosion. If significant new funding becomes available, other sites described below under Phase II monitoring will be added to the Phase I photomonitoring program.

Management action will be mandatory when photomonitoring indicates imminent loss of the resource. For stabilized sites and sites with standing masonry walls, the BLM will largely be monitoring structural integrity, watching for indicators such as the undermining of walls, erosion, and loss of mortar and chinking material.

Sites threatened by erosion, a form of subsurface disturbance, will be monitored to observe the rate of resource loss. If important cultural deposits are being lost, salvage excavations will be considered. Other measures such as physical erosion control devices may also be installed to retard or prevent the loss of important resources.

BLM archeologists will participate in initial selection of photomonitoring stations on the sites; under ideal conditions, they will visit the monitored sites at least once per year. However, under budgetary constraints the photomonitoring can be completed by volunteers or non-specialists. Completion of this task will require about 3 days per site, 1 day to take the photographs and 2 more days to develop and mount the photographs.

Monitoring for Illegal Excavations: Pothunting (a form of subsurface disturbance) is an illegal activity that can have drastic effects on cultural resources. It is particularly difficult to monitor, because years may pass in a given area with no pothunting at all. Then, without warning, major damage can result from a single episode. The goal of monitoring will be to identify areas of ongoing pothunting that will trigger law enforcement actions. A secondary goal is to learn about patterns of pothunting to better anticipate where problems are likely to occur.

The first step in monitoring illegal excavation is finding out which sites are vulnerable and where they are located. This requires continuing inventory and collection of data about vandalized sites. It is likely that sites with visible trash piles and architecture are more vulnerable because they are more likely to contain burials with valuable grave goods. Looters also seem to prefer sites occupied between A.D. 1050 and 1300, because these contain more valuable pottery than earlier sites. Finally, pothunters may prefer relatively accessible sites that are concealed from the main travel routes. These speculations show the kinds of patterns that will be sought in the inventory data, and they show that it is possible to target certain resources as higher priority monitoring subjects.

Given the large number of sites and the low numbers of potential monitors, it is unrealistic to expect that every site will be revisited on a regular basis. Instead, the NCA will be divided into monitoring units based on access and known or suspected resource density. Each monitoring unit will consist of an area and a set of sites that can realistically be visited in a single day.

A monitoring packet will be prepared for each monitoring unit to include site forms for vulnerable sites, a 7.5-minute map of the unit showing the locations of all vulnerable sites, and a tally sheet listing these sites. As frequently as possible, BLM personnel and volunteers will walk through the monitoring units with the site files in hand, locating previously recorded sites and indicating on a tally sheet any evidence of recent pothunting or the lack of such evidence.

To ensure that monitoring is distributed throughout the NCA and not concentrated excessively in particular areas, a master map of the NCA will be maintained, with monitoring units marked out on a Mylar overlay. A grease pencil will be used to record on the overlay the date of the last formal patrol in each unit. Patrol dates will also be entered in a log book. These tools, in conjunction with a knowledge of the distribution of vulnerable sites and a knowledge of pothunters' activities, will maximize the efficiency of this form of monitoring.

Any recent or ongoing pothunting is an unacceptable change in the condition of cultural resources that will

trigger law enforcement action in the form of investigation and possibly surveillance.

Cultural resource specialists must participate in the initial preparation of monitoring packets. However, once these are complete, much of the actual patrolling can be done by volunteers or non-specialists. The rate at which monitoring packets are prepared and the frequency of actual monitoring will depend upon levels of funding and levels of volunteer participation. Under Phase I monitoring, approximately one monitoring packet can be prepared per year and three units can be field checked.

Intensive Surface Monitoring: Visitor use is expected to increase in El Malpais, and the most serious effect of increased visitation on cultural resources is the removal of surface artifacts through casual collection. Surface collection will increase in direct proportion to increased visitor use, but at present it is impossible to anticipate the rate or severity of this impact.

The loss of surface artifacts destroys the BLM's ability to evaluate archeological sites without extensive and very expensive excavation. This is especially serious in El Malpais because critical differences in the age of archeological sites are often recognized on the basis of relatively low percentages of distinctive polychrome pottery. The brightly colored polychrome sherds are the first to disappear as the result of casual surface artifact collection. Stone tools and unusual types of chipped stone are also believed to be especially vulnerable to surface collection.

The strategy for monitoring such impacts to prehistoric buried sites and prehistoric architectural sites consists of selecting key monitoring locations (index sites) and thoroughly documenting their surface assemblages. The sites will then be revisited periodically and redocumented using identical techniques. The results will then be compared to previous years' data to see if there are changes in the absolute quantity, relative frequency, and size ranges of both pottery and stone artifacts.

Application of these methods to all archeological sites, or even a sizeable fraction of the thousands of archeological sites in the NCA, is clearly impractical due to the tremendous expense such a program would entail. Instead the BLM will select specific key monitoring locations (index sites) that are judged to represent the various levels of impacts taking place in the NCA as a whole. Some index sites will be selected in areas of anticipated high impacts, but others should be selected in areas where very little impact is expected. These latter sites will serve as controls to allow the BLM to assess the effects of non-cultural factors on surface artifact frequencies.

Documentation of surface artifact assemblages will be done under the direct supervision of trained cultural resource specialists, either BLM employees or contractors. Assuming samples of about 200 ceramics and 100 lithics per site, this form of monitoring will require about 1 field day per site and 2 additional office days to finalize documentation. Levels of funding will determine the rate at which surface artifact documentation can be implemented. Under Phase I, approximately three assemblages will be documented per year. After baseline information is collected, follow-up documentation will take place at 2- to 5-year intervals.

At present the BLM does not know enough about factors that affect the condition of surface artifact assemblages to establish definite standards for Limits of Acceptable Change. For example, some variation in artifact tallies will be expected as the result of the natural processes of exposure and reburial. Also, some degree of variation may exist in tallies taken by different investigators and between tallies taken in different seasons and at different times of the day. Factors other than visitor use, such as vegetative recovery, may also result in noticeable changes. However, the BLM expects that the most important variations will be those that result from illegal surface collection.

After 2 to 5 years, definite standards for Limits of Acceptable Change will be established. As an example, one LAC standard will be a level of change that will result in misclassification of a site's time period, or loss of key lithic artifacts. A major change in average artifact size can also be used as a standard. Actions that can be triggered when standards are exceeded include mitigation through surface collection, imposition of quota-based permit systems to regulate visitor use, and closure of sensitive areas.

Phase II Monitoring

Phase II monitoring activities are those additional measures that will be undertaken if significant increases in funding and staffing become available. For cultural resources no new monitoring techniques will be employed, but the monitoring program

described above will be significantly expanded and accelerated.

Photomonitoring: With increased funding, photomonitoring will be expanded to include three NCA rock art sites, the Aldridge Panel, the Lobo Canyon Petroglyphs, and the Citadel Panels. These properties are vulnerable to damage through gradual erosion of the rock surface, collapse of the outcrops upon which they occur, and malicious vandalism such as the addition of graffiti.

Photomonitoring will also be expanded to include historic homesteads selected after completion of the homestead study. These sites can lose structural integrity both through gradual, incremental destruction by natural decay processes and through catastrophic events, such as wildfire. They are also vulnerable to malicious vandalism and theft of building materials.

Monitoring for Illegal Excavations: Under Phase II, monitoring packets will be prepared for all monitoring units of the NCA within a single year. The frequency of monitoring each of these units will be increased dramatically.

Intensive Surface Monitoring: If available, increased funding will allow more archeological sites to be included in this program and will permit more frequent redocumentation. This, in turn, will provide a more accurate and reliable indicator of the ongoing effects of illegal surface collection and will allow the BLM to assess the results of such monitoring much more rapidly.

CHAPTER 3

Actions and Implementation

Chapter 3
Actions and Implementation

Section 1
Introduction

This chapter lists the tasks that are planned to implement the management prescriptions and actions outlined in the Draft GMP. Through accomplishing these tasks, the BLM will carry out the mandate of Public Law 100-225 to protect the resources in the El Malpais National Conservation Area (NCA).

Eight issues of importance in the NCA are addressed in the Draft GMP. These include Recreation, Wilderness, Facility Development, Wildlife Habitat, Range Management, Natural Resources, Cultural Resources, and American Indian Issues. For the purposes of implementation, the tasks in this chapter have been grouped into "initiatives," some of which affect several NCA issues.

The initiatives discussed are Administration, Public Outreach, Naturalness-Restoration, Recreation, Desired Plant Communities, Erosion Control, Wildlife Resources Management, Natural Resources Management, and Cultural Resources. They are designed to ensure resource protection while allowing visitation and other compatible uses to occur. Addressing the NCA issues as they relate to the initiatives will help the BLM to use an integrated, interdisciplinary approach to plan implementation.

An example of an initiative whose implementation will affect several issues in the NCA is the initiative that is designed to develop and monitor desired plant communities. As this initiative is implemented, the results will affect recreation, wilderness, wildlife habitat, range management, and cultural resources.

The initiatives, actions, and tasks are based on the list contained in Table 2-4 of the Draft GMP, "Summary of BLM Proposed Actions in the El Malpais NCA." These proposals have been developed and enhanced based on the guidance and mandates of the El Malpais legislation, BLM program manual requirements, data gathered in existing inventories, firsthand knowledge of on-the-ground conditions, and public input. As more information becomes available about the natural resources of the NCA through monitoring, different initiatives, actions, and tasks may be introduced to better respond to resource conditions.

This GMP will guide management in the El Malpais NCA. Site-specific plans that implement the proposed actions and tasks will be developed at the Grants Field Station. These plans will interface with this GMP; BLM-wide resource management plans such as Fish and Wildlife 2000 and Recreation 2000; the Rio Puerco Resource Management Plan; the Socorro Resource Management Plan; a patrol and surveillance plan developed for cultural resources in the Rio Puerco Resource Area; allotment management plans; and range improvement maintenance plans.

Section 2
Implementation Program for the NCA

INTRODUCTION

The initiatives to be implemented in the NCA are presented in table format in this section. Each table lists the actions and tasks proposed under each initiative, along with the issues affected, the estimated number of workmonths and the cost to implement each action or task, and the suggested priority for implementation.

Several items in these tables may be better understood with some preliminary explanation. First, it should be noted that all costs and workmonths are approximate; actions and tasks completed will depend on the staff and funding available as implementation proceeds; and costs are expressed in 1990 dollars.

Second, some estimated costs are one-time and some are recurrent. The recurrent costs are labeled in the tables below as "/Y," indicating that they recur once a year, or annually.

Third, costs and/or workmonths are not estimated for all items. Some largely administrative tasks (e.g., establishing contacts with local media representatives) will be performed in the course of completing other tasks or ongoing BLM program work and are thus not assigned separate costs. The costs and/or workmonths for others tasks (e.g., land acquisitions and exchanges) cannot be estimated at this time and will be determined later.

Because of these last two factors, it is difficult to get a true picture of overall plan implementation costs simply by adding up all the figures presented. Also, because the figures presented are in 1990 dollars, they do not take into account inflation and other economic variables that may affect costs in the future.

Fourth, implementation priorities are designated as "I," "II," or "III," with the level I priority tasks to be implemented first. This does not mean that levels II and III priority tasks lack importance for overall management of the NCA; however, they are scheduled in a logical sequence to follow tasks with level I priority.

Fifth, implementation priorities are set in a relative rather than an absolute timeframe. Thus, it is unlikely that all priority I tasks will be completed by the same date.

ADMINISTRATION

Table 3-1 shows the actions and tasks to be implemented in the El Malpais NCA under the administration initiative. These efforts emphasize conserving and protecting the scenic, natural, and cultural resource values in the NCA through acquisitions and boundary changes; encouraging respect, reaffirming equal employment opportunity, and protecting continued use of the NCA for local American Indians; and providing for resource protection, visitor safety, cooperative management, and effective management of the NCA through various administrative measures.

TABLE 3-1

ACTIONS AND TASKS TO BE IMPLEMENTED IN THE EL MALPAIS NCA UNDER THE ADMINISTRATION INITIATIVE[1/]

ACTIONS & TASKS	AFFECTED ISSUE(S)	WORK-MONTHS	COST (1990 $)	PRIORITY
Acquisitions				
Conserve & protect scenic, natural, & cultural resource values through acquisition[2/]				
Acquire scenic easements or property along main access routes including NM 117, NM 53, CR 42, and I-40	All	5	TBD	I
Acquire legal access to mouth of Cebolla Canyon	Cultural Resources Wilderness Recreation	2	TBD	I
Acquire easements & private land to legally access Dittert Site	"	3	TBD	I
Acquire private property next to Ranger Station containing cultural resources to be interpreted	Cultural Resources Recreation	2	TBD	I
Acquire threatened cultural properties such as Pinole Site & Cerritos de Jaspe Community	Cultural Resources	2	TBD	I
Acquire private land to construct kiosk along NM 53 & provide watchable wildlife viewing area in wetlands	Wildlife Habitat	3	TBD	II
Acquire private lands contiguous w/ Conservation Unit that contain wetland habitat	"	2	TBD	II
Acquire legal access &/or selected private land in Cerritos de Jaspe	Recreation	3	TBD	III
Acquire easements &/or property where Continental Divide National Scenic Trail (CDNST) crosses private land within NCA	"	5	TBD	III
Evaluate acquisition of Mertz Ranch or other appropriate facility to use as base for Field Learning Center	All	5	TBD	III
Boundary Changes				
Conserve & protect identified scenic, natural, & cultural values through inclusion in Conservation Unit (CU)[2/]				
Acquire necessary private land (refer to "Acquisitions" section above)	All	20	TBD	II
Recommend to Congress that CU boundary be expanded to include contiguous lands w/important natural & cultural resources &/or easements for access, including Techado Mesa area, Tank Canyon area, Dittert Site, cultural site adjacent to Ranger Station, & area proposed for treadway of CDNST	"	1	TBD	II
American Indian Concerns				
Encourage respect, reaffirm equal employment, & protect continued use for American Indians				
Continue consultation & liaison w/interested local Indian tribes	American Indian Issues	2/Y	--	I

TABLE 3-1 - CONTINUED

ACTIONS & TASKS	AFFECTED ISSUE(S)	WORK-MONTHS	COST (1990 $)	PRIORITY
Conduct cultural sensitivity training for law enforcement & other key field personnel	"	.5/Y	TBD	I
Target law enforcement ranger position for American Indian	"	10/Y	--	I
Target visitor information specialist position for American Indian	"	10/Y	--	I
Avoid placing public use facilities in sensitive areas; use trail placement & other design factors to direct visitors away from sites identified for religious &/or traditional cultural activities	"	1	--	II
Cooperate w/Pueblo of Acoma, NPS, & other agencies to develop & use facilities at Kowina Foundation property if pueblo requests government assistance	Recreation, Cultural Resources	3	TBD	III
Through MOU w/Acoma Pueblo, provide guided tours of Calabash Ruins & mesa-top views	"	3	--	III
<u>General Management</u>				
Provide for resource protection & visitor safety				
Identify non-essential roads & vehicular ways & close them to unauthorized use	Recreation Wildlife Habitat Wilderness Cultural Resources	5	TBD	I
Restrict vehicle access to areas w/ sensitive sites & high site densities	Cultural Resources	2	2,000	I
Close concentrated use areas & recreation facilities to grazing, hunting, & trapping (coordinating w/NMDG&F)	Recreation	1	20,000	I
Identify & establish least damaging access routes w/private landowners	Wilderness	2	--	I
Assist state in search & rescue activities through coordination w/NM State Police, NPS, & local law enforcement authorities	Recreation	1/Y	TBD	I
Develop search & rescue plan to include criteria under which vehicle or helicopter use will be allowed for life-threatening situations	Wilderness Recreation	2	--	I
Equip Ranger Station w/radio communication capacity; ensure compatibility w/NPS system	All	1	TBD	I
Encourage Cibola County to upgrade & improve CR 42 to all-weather condition	"	.25	--	II
Provide effective management & expanded services by using cooperative techniques				
Cooperate w/NPS in full partnership role to develop Multiagency Center	Recreation	10/Y	TBD	I
Serve in full partnership role w/NPS, local American Indian groups, communities of [illegible] & other agencies in developing Masau Trail	All	5	TBD	I

Continue existing MOU w/US Forest Service & UNM Technical Appli

TABLE 3-1 - CONCLUDED

ACTIONS & TASKS	AFFECTED ISSUE(S)	WORK-MONTHS	COST (1990 $)	PRIORITY
Channel results of research efforts into direct management practices for NCA	"	1/Y	--	I
Identify sites appropriate for addition to Masau Trail	Recreation Cultural Resources	1	--	II
Work cooperatively w/NM Highway Dept. & NPS to realign NM 117	All	2	TBD	II
Cooperate w/NPS in backcountry planning for management of Cerro Encierro Road	Recreation Wilderness Wildlife Habitat	1	--	III
If approved for employee occupancy & acquired, use Mertz Ranch as backcountry ranger station	All	TBD	TBD	III
Staff & train personnel for effective management of NCA				
Staff Ranger Station w/two visitor information specialists3/ & one seasonal	All	25/Y	--	I
Use volunteers when feasible at Ranger Station	"	.5/Y	--	I
Staff NCA w/two law enforcement rangers3/ for patrol & surveillance	"	20/Y	--	I
Ensure ARPA-related training for law enforcement & other key field personnel	Cultural Resources	6.5	6,000	I
Train personnel in patrol techniques; use resource specialists & volunteers to assist in wilderness patrols	Wilderness	.5/Y	--	II
Through training or detail assignments, develop staff expertise in repair & preservation of historic homesteads & related features	All	4	--	II

Notes: 1/ Cost of one workmonth is $3,200; "/Y" indicates workmonth costs that recur annually. "--" indicates that workmonths and/or costs involved in task are minimal. "TBD" indicates that workmonths and/or costs are to be determined.
2/ All land to be acquired must be valued through the formal BLM appraisal process; values cannot be estimated at this time.
3/ One of each of these two positions would be targeted for an American Indian, as mentioned above under "American Indian Concerns."

PUBLIC OUTREACH

The actions and tasks to be implemented in the El Malpais NCA under the public outreach initiative are shown in Table 3-2. The actions focus on establishing guidelines for interpretation, onsite and offsite interpretive programs, an environmental education program, and a natural resources marketing effort, as well as encouraging scientific research.

TABLE 3-2

ACTIONS AND TASKS TO BE IMPLEMENTED IN THE EL MALPAIS NCA UNDER THE PUBLIC OUTREACH INITIATIVE[1/]

ACTIONS & TASKS	AFFECTED ISSUE(S)	WORK-MONTHS	COST (1990 $)	PRIORITY
Establish guidelines for interpretation				
Prepare final interpretive prospectus	All	1	400	I
Develop interpretive themes to convey management objectives for NCA (refer to Chapter 9, Draft GMP)	"	TBD	TBD	I
Develop interpretive materials in cooperation with interested local American Indians	American Indian Issues	.5	TBD	I
Establish onsite interpretive programs				
La Ventana Natural Arch Develop site-specific interpretive roadside exhibit that develops themes about natural processes exemplified by La Ventana, wilderness resources, & cultural resources	Recreation Wilderness Cultural Resources	1	5,000	I
Conduct special tours & programs	"	.5/Y	TBD	II
Ranger Station Develop onsite interpretive trail at BLM Ranger Station to access cultural resources, including prehistoric reservoir	Cultural Resources Recreation	2	3,000	III
Wilderness Trailheads Develop & post trailhead information about wilderness, low-impact visitor use, & safety for Cebolla & West Malpais wilderness units (at South Narrows & cherry-stemmed road, respectively)	Wilderness Recreation Cultural Resources Wildlife Habitat	2	10,000	I
Orientation Kiosks Develop & post information on points of interest, facilities available, safety, activities, & events w/in NCA	All	1	10,000	I
Include information on migrating birds at kiosk located on north side of NCA in T10N, R10W, Sec. 2, near marshy habitat	Wildlife Habitat	.5	500	II
Dittert Site Develop interpretive information for trailhead highlighting cultural resources, human use of region, wilderness, low-impact visitor use, & safety	Wilderness Cultural Resources Recreation	1	500	I
Develop interpretive themes to convey management objectives for NCA (refer to Chapter 9, Draft GMP)	"	1	5,000	I

TABLE 3-2 - CONTINUED

ACTIONS & TASKS	AFFECTED ISSUE(S)	WORK-MONTHS	COST (1990 $)	PRIORITY
Develop site bulletin	Wilderness Cultural Resources Recreation	1	1,000	II
Conduct special tours & programs	"	.5/Y	TBD	III
Historic Homestead Develop interpretive information for trailheads, highlighting history of homesteading in NCA & human use of land	Cultural Resources Recreation	1	500	I
Develop site bulletin	"	1	1,000	II
Conduct special tours & programs	"	.5/Y	TBD	III
High Desert Ecosystem Roadside Exhibit Develop interpretive panel highlighting natural resources, wildlife, landscape, geology, & landforms	Recreation Wildlife Habitat Wilderness	1	1,200	II
Continental Divide National Scenic Trail Develop interpretive information for two trailheads, highlighting natural resources, cultural-historic resources, safety, & low-impact visitor use	Recreation	1	500	III
Establish offsite interpretive programs				
Staff Ranger Station w/personnel to provide talks, hikes, & program development	All	25/Y	--	I
Cooperate w/NPS in developing & operating Multiagency Center	"	10/Y	TBD	I
Use trained local groups & individual volunteers to assist in providing services	"	.5/Y	--	I
Present visitor information at BLM Ranger Station & Multiagency Center, including natural & cultural resource exhibits, audio visual programs, & interpretive trails; written information including maps, brochures, & books; ranger talks & guided hikes; & safety information	"	4	100,000	I
Develop brochures that provide maps w/information on land status; legal access; low-impact use techniques for hikers, backpackers, horseback riders, mountain bikers, hunters, & other users	"	2	10,000	I
Inform public about variety of wildlife habitats found in complex terrain & geology of Cerritos de Jaspe subunit	Wildlife Habitat Recreation	1	1,000	II
Inform public about geology & cultural aspects of sandstone cliffs, La Rendija (Maxwell's Fault), ancient lava flows under grasslands, Cerro Rendija (shield volcano)	Cultural Resources Recreation Wildlife Habitat	1	1,000	II
Provide workshops for interested groups on natural resources, hunter safety, leave-	All	1/Y	2,000	III

TABLE 3-2 - CONTINUED

ACTIONS & TASKS	AFFECTED ISSUE(S)	WORK-MONTHS	COST (1990 $)	PRIORITY
Establish environmental education program				
Develop environmental education action plan	All	1	--	I
Incorporate cultural resources into plan	Cultural Resources	--	--	I
Identify local contacts w/public & private schools	All	--	--	I
Assist teachers in developing lesson plans on ecology, natural history, cultural heritage, & conservation practices	"	1/Y	--	I
Promote BLM's mission & importance of public land users' role in conservation	"	--	--	I
Work w/Museum of Natural History in adult & youth education programs	"	.5/Y	TBD	III
If acquired, work w/interested groups at Field Learning Center for environmental education, ecotourism, & research purposes	"	2/Y	TBD	III
Encourage scientific research				
Establish & maintain contacts w/teaching & research institutions interested in scientific research in NCA	All	.25/Y	--	I
Use MOUs, cooperative agreements, & other methods to encourage theses or other research projects that expand understanding of natural & cultural systems	"	.25/Y	--	I
Accommodate scientific research consistent w/BLM policy	"	--	--	I
Enter into agreements w/appropriate institutions to conduct research in area of La Rendija (Maxwell's Fault) & other areas of geologic & paleontologic interest	Natural Resources	.25/Y	--	I
Reduce need for research involving collection or excavation of cultural sites by encouraging use of existing collections	Cultural Resources	--	--	I
Write up excavations from Arroyo Site & arrange for permanent curation of its artifacts	"	1	25,000	I
Restrict cultural research involving collection or excavation at non-threatened sites (refer to Chapter 13, Draft GMP)	"	TBD	TBD	I
Develop efficient & responsive permitting system for research proposals in Cebolla Wilderness Unit	Wilderness	4	--	I
Locate existing collections from previous research & compile copies of project records	Cultural Resources	4	1,000	II
Preserve long-term potential of cultural sites for scientific use[2/]	Cultural Resources Wilderness	2/	2/	III
Establish natural resources marketing effort	All	.5	TBD	I
Implement marketing plan	"	.5/Y	--	I
Establish & maintain contacts w/local & regional news media; provide frequent news releases to local & regional media about activities in NCA				

TABLE 3-2 - CONCLUDED

ACTIONS & TASKS	AFFECTED ISSUE(S)	WORK-MONTHS	COST (1990 $)	PRIORITY
Establish & maintain contacts w/community groups, chambers of commerce, convention centers, & local American Indian groups to develop regional marketing approach	"	.5/Y	--	I
Provide speaker services to local & regional clubs, groups, organizations, & internal audiences about El Malpais resources	"	.5/Y	--	II
Develop slide &/or video programs for community groups, local & regional schools, & other interested parties	"	2	8,000	II
Develop mobile displays to travel to local & regional fairs, museums, & other special events	"	2	2,000	II
Sponsor El Malpais workshop for local businesses on resources & services in NCA so they can inform visitors	"	.5/Y	TBD	III

Notes: 1/ Cost of one workmonth is $3,200; "/Y" indicates workmonth costs that recur annually. "--" indicates that workmonths and/or costs involved in task are minimal. "TBD" indicates that workmonths and/or costs are to be determined.
2/ Refer to Table 3-9 (Cultural Resources Initiative) for more information on related tasks.

NATURALNESS-RESTORATION

Table 3-3 lists the actions and tasks to be implemented in the El Malpais NCA under the initiative for naturalness and restoration. The emphases of this initiative are to restore natural ecological processes, protect visual resources, and establish a monitoring system for the NCA (refer to Chapter 2 for more detail on monitoring).

TABLE 3-3

ACTIONS AND TASKS TO BE IMPLEMENTED IN THE EL MALPAIS NCA UNDER THE NATURALNESS-RESTORATION INITIATIVE[1/]

ACTIONS & TASKS	AFFECTED ISSUE(S)	WORK-MONTHS	COST (1990 $)	PRIORITY
Restore natural ecological processes				
Develop fire plan that allows fire to fill its natural role; identify & map areas where naturally occurring or prescribed fires will maintain vegetation	Wilderness Natural Resources	2	5,000	I
Allow fire to fill its natural role in deterring fuel buildup	"	TBD	TBD	I
Encourage small fires (no more than 20 acres) in areas where erosion of steep slopes is likely & where human activity has produced potential for damaging fire	"	TBD	TBD	II
Reseed w/native species if natural regeneration does not occur	"	TBD	TBD	II
Repair or replace existing erosion control structures when found in disrepair	"	TBD	TBD	II
Remove nonessential structures & installations from wilderness & wilderness study areas	"	TBD	TBD	II
Evaluate structures related to authorized uses & determine methods of minimizing visual impacts	"	2	5,000	III
Physically close vehicular access by fencing or barricading vehicular ways at wilderness boundaries	Wilderness	3	20,000	III
Reseed vehicular ways w/native species if natural revegetation does not occur	"	2	10,000	III
Protect visual resources				
Using visual contrast rating process, assess all projects proposed for NCA	Recreation	1	--	I
Consider visual absorption capability of BLUs being affected by any development proposals	"	TBD	--	II
Design & construct all facilities to blend harmoniously w/natural landscape	"	TBD	TBD	II
Establish monitoring system for NCA				
Identify indicators of change for NCA (refer to Chapter 2)	All	3	10,000	I
Establish standards for allowable change (refer to Chapter 2)	"	2	5,000	II
Monitor & patrol to collect indicator data	"	2/Y	5,000	III

Note: 1/ Cost of one workmonth is $3,200; "/Y" indicates workmonth costs that recur annually. "--" indicates that workmonths and/or costs involved in task are minimal. "TBD" indicates that workmonths and/or costs are to be determined.

RECREATION

Under the recreation initiative, the actions and tasks to be implemented in the El Malpais NCA are as presented in Table 3-4. This initiative focuses on providing resource protection and high-quality visitor services, monitoring recreation use, providing for visitor safety, and protecting private property.

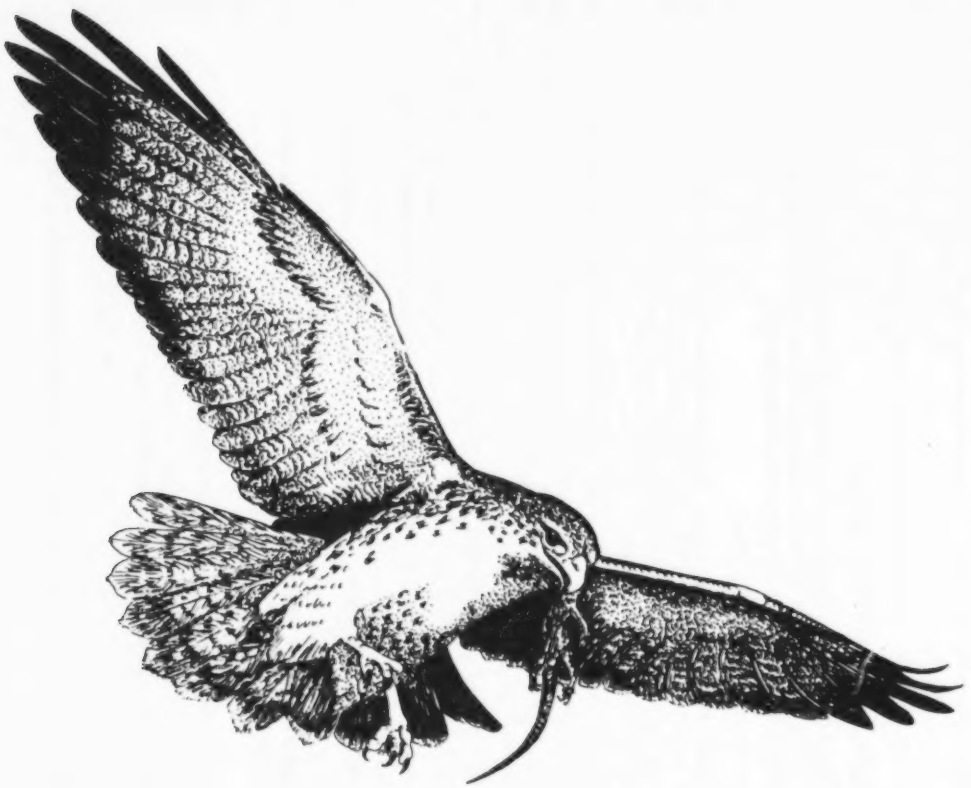


TABLE 3-4

ACTIONS AND TASKS TO BE IMPLEMENTED IN THE EL MALPAIS NCA UNDER THE RECREATION INITIATIVE[1/]

ACTIONS & TASKS	AFFECTED ISSUE(S)	WORK-MONTHS	COST (1990 $)	PRIORITY
Provide resource protection & high-quality visitor services				
Construct BLM Ranger Station along NM 117 northeast of Sandstone Bluffs Overlook to provide parking, visitor information/reception, exhibits, sales, housing for seasonal employees/volunteers, & radio communications facility[2/]	All	30	1,000,000	I
Construct interpretive trail at Ranger Station	Recreation	2	23,000	I
Construct additional recreation facilities at La Ventana Natural Arch, including interpretive panel, curbs & gutters at existing parking area; upgrade existing trail (outside wilderness); install visitor counter along existing trail; pave parking lot & handicapped-accessible trail to photo point	Recreation Wilderness	2	150,000	I
Construct wilderness trailheads w/gravel parking areas for Cebolla and West Malpais wilderness units (at South Narrows & cherry-stemmed road, respectively)	Wilderness Recreation	2	57,000	I
Cooperate w/NPS & USFS to identify, select, & develop treadway for Continental Divide National Scenic Trail (CDNST)	Recreation	.5	2,000	I
Develop & construct appropriate trailheads for CDNST within NCA	"	4	50,000	II
Work cooperatively w/NPS, NM Highway Dept., & Pueblo of Acoma in realigning NM 117 to minimize resource impacts & provide positive recreation opportunity at South Narrows	All	2	100,000	II
Construct two orientation kiosks at Conservation Unit entrance points in cooperation with NPS[3/]	Recreation	3	52,000	II
Complete archeological survey, evaluation, & stabilization of Dittert Site in support of planned interpretation	Recreation Cultural Resources	1	60,000	II
Construct recreation facilities outside wilderness to access Dittert Site[3/]	Recreation Wilderness	4	222,000	III
Identify areas along transportation corridors appropriate for viewing wildlife[4/]	Recreation Wildlife Habitat	.5	--	III
Identify homestead sites suitable for interpretation & develop appropriate visitor facilities[5/]	Recreation Cultural Resources	6	70,000	III
Monitor recreation use & identify locations appropriate for future development if needed				
Establish patrol schedule for monitoring & maintenance by BLM rangers, resource	All	.5	--	I

TABLE 3-4 - CONCLUDED

ACTIONS & TASKS	AFFECTED ISSUE(S)	WORK-MONTHS	COST (1990 $)	PRIORITY
Monitor visitor use w/traffic counters, people counters, & self-issued registration at parking areas, developed trails, & trailheads	Recreation Wilderness Natural Resources	1/Y	--	I
Monitor to identify creation of social trails	All	1/Y	5,000	I
Monitor to identify excessive soil compaction &/or loss of ground cover along designated trails & in camp areas	Recreation	1/Y	5,000	I
Monitor to identify any removal of dead vegetation for campfires	Recreation Wildlife Habitat	1/Y	5,000	I
Analyze monitoring data & make recommendations on visitor use capacity & possible management options	All	.5	--	II
Provide for visitor safety, protection of private property, & resource protection				
Post directional & property signs where necessary to inform visitors	All	3	10,000	I

Notes: 1/ Cost of one workmonth is $3,200; "/Y" indicates workmonth costs that recur annually. "--" indicates that workmonths and/or costs involved in task are minimal.
2/ Refer to Table 3-1 (Administration Initiative) for acquisitions & boundary adjustments pertaining to Ranger Station development.
3/ Refer to Table 3-1 (Administration Initiative) for acquisitions & boundary adjustments needed before Dittert Site & kiosk development occurs.
4/ Refer to Tables 3-1 & 3-7 (Administration & Wildlife Resources Management Initiatives) for actions to be implemented before any recreation facilities for wildlife viewing are constructed.
5/ Refer to Table 3-9 (Cultural Resources Initiative) for inventories, evaluations, & stabilizations needed before any recreation development occurs.

DESIRED PLANT COMMUNITIES

Under the initiative for desired plant communities, the actions and tasks to be implemented in the El Malpais NCA are those shown in Table 3-5. This initiative emphasizes the following actions: maintaining or improving forage and browse condition while managing for desired plant communities; allowing fire to fill its natural role in vegetation communities; and protecting and maintaining range improvements to manage livestock movements.

TABLE 3-5

ACTIONS AND TASKS TO BE IMPLEMENTED IN THE EL MALPAIS NCA UNDER THE INITIATIVE FOR DESIRED PLANT COMMUNITIES[1/]

ACTIONS & TASKS	AFFECTED ISSUE(S)	WORK-MONTHS	COST (1990 $)	PRIORITY
Maintain or improve forage & browse condition while managing for desired plant communities				
Monitor existing key areas in each allotment pasture & special habitat sites according to schedules identified in Rio Puerco RMP; use data collected to identify changes in range condition	Range Management Wildlife Habitat Recreation Cultural Resources	2/Y	--	I
Revise allotment agreements between BLM and allottees to change management of affected areas if decline in ecological range condition is detected	"	.5/Y	--	I
Form committee of range, wildlife, forestry, recreation, wilderness, & watershed personnel to determine desired plant communities for NCA with input from local American Indian representatives	Range Management Wildlife Habitat Recreation Cultural Resources American Indian Issues	1	--	II
Select indicator areas that reflect recreation, cultural resources, watershed, range, wildlife, & American Indian needs using GIS	"	2	--	II
Develop desired plant communities based on wildlife habitat, allotment boundaries, other land uses, & watershed needs	"	2/Y	--	II
Monitor NCA following recommendations of committee; funding to support monitoring will come from various programs involved	"	.25/Y	--	II
Allow fire to fill its natural role in vegetation communities	Range Management Wildlife Habitat Recreation Cultural Resources	.25/Y	--	I

TABLE 3-5 - CONCLUDED

ACTIONS & TASKS	AFFECTED ISSUE(S)	WORK-MONTHS	COST (1990 $)	PRIORITY
Protect & maintain range improvements to manage livestock movements				
Monitor range improvements & work with allottees to replace or repair improvements when needed; implement RIM Plans in wilderness	Range Management Wildlife Habitat Recreation Cultural Resources Wilderness	1/Y	TBD	I
Inform visitors of impacts potentially caused to vegetation when fences, gates, water tanks, or windmills are altered or damaged	"	.25	500	II

Note: 1/ Cost of one workmonth is $3,200; "/Y" indicates workmonth costs that recur annually. "--" indicates that workmonths and/or costs involved in task are minimal. "TBD" indicates that workmonths and/or costs are to be determined.

EROSION CONTROL

The actions and tasks to be implemented in the El Malpais NCA under the erosion control initiative are found in Table 3-6. The actions include items that are designed to protect against the loss of soils and habitat through erosion control, and through repair or replacement of existing erosion control structures when they are in disrepair.

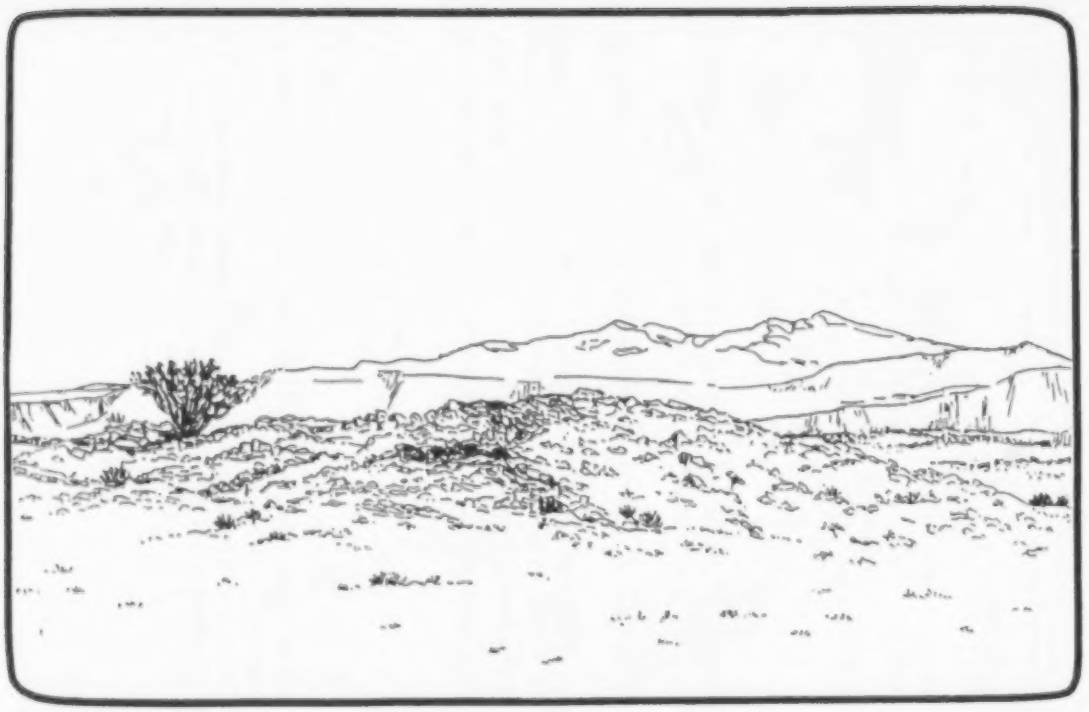


TABLE 3-6

ACTIONS AND TASKS TO BE IMPLEMENTED IN THE EL MALPAIS NCA UNDER THE EROSION CONTROL INITIATIVE[1/]

ACTIONS & TASKS	AFFECTED ISSUE(S)	WORK-MONTHS	COST (1990 $)	PRIORITY
Protect against loss of soils & habitat through erosion control				
Identify areas potentially at risk using GIS graphic capabilities to pinpoint areas w/steep slopes & erodible soils, allotments in I category, & sites identified by specialists	Range Management Wildlife Habitat Cultural Resources Recreation	1	--	I
Monitor areas potentially at risk from erosion on yearly or other predetermined schedule to identify gullying & loss of cover	"	.5/Y	3,000/ Landsat scene	I
Inventory NCA for areas w/potential erosion problems & generate watershed data base	"	1/Y	--	II
Select appropriate control methods when erosion problems are identified (e.g., seed, limit livestock use for appropriate time, construct or repair erosion control devices)	"	TBD	TBD	II
Repair or replace existing erosion control structures when they are in disrepair				
Monitor existing erosion control structures on regular basis; identify deterioration	Range Management Wildlife Habitat Recreation Cultural Resources	.5/Y	--	I
Repair or replace structures as needed using volunteers &/or BLM personnel	"	TBD	TBD	I

Note: 1/ Cost of one workmonth is $3,200; "/Y" indicates workmonth costs that recur annually. "--" indicates that workmonths and/or costs involved in task are minimal. "TBD" indicates that workmonths and/or costs are to be determined.

WILDLIFE RESOURCES MANAGEMENT

Table 3-7 lists the actions and tasks to be implemented in the El Malpais NCA under the initiative for wildlife resources management. The actions are designed to protect the diversity of wildlife habitats and species found in the NCA, and to maintain and develop waters for game species and other wildlife.

TABLE 3-7

ACTIONS AND TASKS TO BE IMPLEMENTED IN THE EL MALPAIS NCA UNDER THE INITIATIVE FOR WILDLIFE RESOURCES MANAGEMENT[1/]

ACTIONS & TASKS	AFFECTED ISSUE(S)	WORK-MONTHS	COST (1990 $)	PRIORITY
Protect diversity of wildlife habitats in NCA				
Continue visible presence in NCA through patrols to deter impacts to habitats through inappropriate uses	Wildlife Habitat Range Management Recreation	1/Y	--	I
Survey for special habitat features (e.g., birthing grounds, raptor eyries, old growth woodland)	"	3	--	II
Map identified special habitats using GIS	"	.5	--	II
Monitor areas identified as sensitive to change or impacts	"	1.5/Y	--	II
Develop management strategies to redirect people or alter impacts to areas identified as sensitive	"	1/Y	500	II
Protect diverse populations of wildlife species found in NCA				
Continue Operation Respect	Wildlife Habitat Range Management Recreation	.5	--	I
Monitor species diversity on existing wildlife transects & by BLU as identified in Draft GMP	"	1/Y	--	I
Develop information for public about wildlife that frequent various habitats of NCA	"	1	500	II
Develop management strategies to redirect people or alter use in BLUs where species diversity is being impacted	"	1/Y	500	II
Maintain & develop waters for game species & other wildlife				
Monitor existing waters & repair or replace when necessary	Wildlife Habitat Range Management Recreation	.25/Y	TBD	I
Survey to determine where additional waters may benefit wildlife	"	.5/Y	--	II
Develop waters for game in areas that meet wildlife needs (refer to Map 3-6 in Draft GMP)	"	TBD	TBD	II

Note: 1/ Cost of one workmonth is $3,200; "/Y" indicates workmonth costs that recur annually. "--" indicates that workmonths and/or costs involved in task are minimal. "TBD" indicates that workmonths and/or costs are to be determined.

NATURAL RESOURCES MANAGEMENT

Actions and tasks to be implemented in the El Malpais NCA under the initiative for natural resources management are listed in Table 3-8. The actions include providing a safe drinking water supply for the public in the NCA; protecting the natural features and visual resources of the NCA; and allowing the collection and removal of dead and down wood (outside of wilderness) for home use where surveys indicate habitat and range will benefit.

TABLE 3-8

ACTIONS AND TASKS TO BE IMPLEMENTED IN THE EL MALPAIS NCA UNDER THE INITIATIVE FOR NATURAL RESOURCES MANAGEMENT[1/]

ACTIONS & TASKS	AFFECTED ISSUE(S)	WORK-MONTHS	COST (1990 $)	PRIORITY
Provide safe drinking water supply for public				
Construct drinking water well at Ranger Station[2/]	Recreation Natural Resources	.25	16,000	I
Monitor quality of public water supply	"	.25/Y	--	I
Provide information to public about locations of safe drinking water & dangers of using other waters located in NCA	"	.25	500	I
Survey water quality of surface springs & selected reservoirs in NCA	"	1	TBD	I
Monitor public use of areas near springs & reservoirs	"	.25/Y	--	I
Monitor quality of surface waters identified as attractors for recreators	"	.5	50,000	II
Protect natural features of NCA				
Develop information for public about unusual geologic & cultural features & wildlife habitats found in NCA	Recreation Natural Resources	1	500	I
Enter into agreements w/appropriate institutions to conduct research in NCA	"	.5	--	II
Protect visual resources in NCA				
Install air quality monitoring station & monitor for visibility & air quality	Recreation Natural Resources	--	--	I
Acquire scenic easements for road corridors in NCA	"	3	TBD	I
Assess all projects proposed for NCA using visual rating process	"	1	--	I
Allow for collection & removal of dead & down wood (outside wilderness) for home use where surveys indicate habitat & range will benefit				
Identify areas where soils condition, access, & fuels buildup allow wood removal by public, using GIS maps of appropriate BLUs (C,D,G,H) & road systems	Wildlife Range Management Recreation	3	--	I
Set up fuelwoods program & mark areas for use	"	.25/Y	--	I
Monitor condition of access & cutting areas	"	.25/Y	--	I
Modify program as appropriate; fuels removal should benefit wildlife habitat, range management, & watershed	"	.25/Y	--	II

Notes: 1/Cost of one workmonth is $3,200; "/Y" indicates workmonth costs that recur annually. "--" indicates that workmonths and/or costs involved in task are minimal. "TBD" indicates that workmonths and/or costs are to be determined.
2/The well at the Ranger Station was completed in 1990.

CULTURAL RESOURCES

The actions and tasks listed in Table 3-9 are those to be implemented in the El Malpais NCA under the cultural resources initiative. They focus on the following: actively protecting prehistoric sites with intact architectural remains; actively protecting cultural resources from vandalism and illegal surface collection; emphasizing the preservation and interpretation of historic homesteads; consolidating public ownership of key properties and easements; increasing the level of cultural resources inventory in the NCA; enhancing the protection of cultural resources through administrative measures; monitoring changes in the condition of cultural resources; emphasizing the long-term conservation of the scientific values inherent in cultural resources; and maintaining a continuing program of interpretation and public education about the cultural resources in the NCA.

TABLE 3-9

ACTIONS AND TASKS TO BE IMPLEMENTED IN THE EL MALPAIS NCA UNDER THE CULTURAL RESOURCES INITIATIVE[1/]

ACTIONS & TASKS	AFFECTED ISSUE(S)	WORK-MONTHS	COST (1990 $)	PRIORITY
Actively protect prehistoric sites w/intact architectural remains				
Maintain stabilization at Dittert Site	Cultural Resources	2	25,000	I
Maintain erosion control measures at Arroyo Ruin	"	3	3,000	I
Stabilize & backfill at Pinole Site & Citadel Complex	"	3	1,000	II
Maintain stabilization at Oak Tree Site	"	1	1,000	III
Actively protect cultural resources from vandalism & illegal surface collection				
Ensure ARPA-related training for law enforcement & other key field personnel	Cultural Resources	6.5	6,000	I
Adjust work schedules & overtime authorizations to ensure that field personnel are on duty in sensitive areas during periods of peak public use	"	2	--	I
Establish & publicize rewards for information leading to arrest & conviction of ARPA violators	"	1	5,000	II
Restrict vehicle access to Spur & Cebolla Canyon Complex	"	2	500	II
Emphasize preservation & interpretation of historic homesteads				
Through reconnaissance, identify & document all historic homesteads within NCA	Cultural Resources Recreation	6	1,000	I
Identify homesteads w/maximum interpretive potential, those to be given special protection from fire, & those to be stabilized & repaired	"	1	--	I
Incorporate protection of high-value homesteads into fire management plan	"	1	--	I
Through special training, ensure that expertise on preservation, stabilization, & repair of historic homesteads is available in Rio Puerco Resource Area	"	1	1,500	I
Compile oral histories of homesteading era in El Malpais	"	6	1,000	II
Complete review of BLM archives, abstracting relevant information about homestead patents in NCA	"	5	500	III
Review SCS 1930s aerial photography, transferring information about historic occupants onto topographic maps	"	2	--	III
Complete definitive historical synthesis of homesteading era, placing it in broad context of US economic & political history	"	1	25,000	III
Consolidate public ownership of key properties & easements				
Acquire easements & private land to legally access Dittert Site	All	3	TBD	I

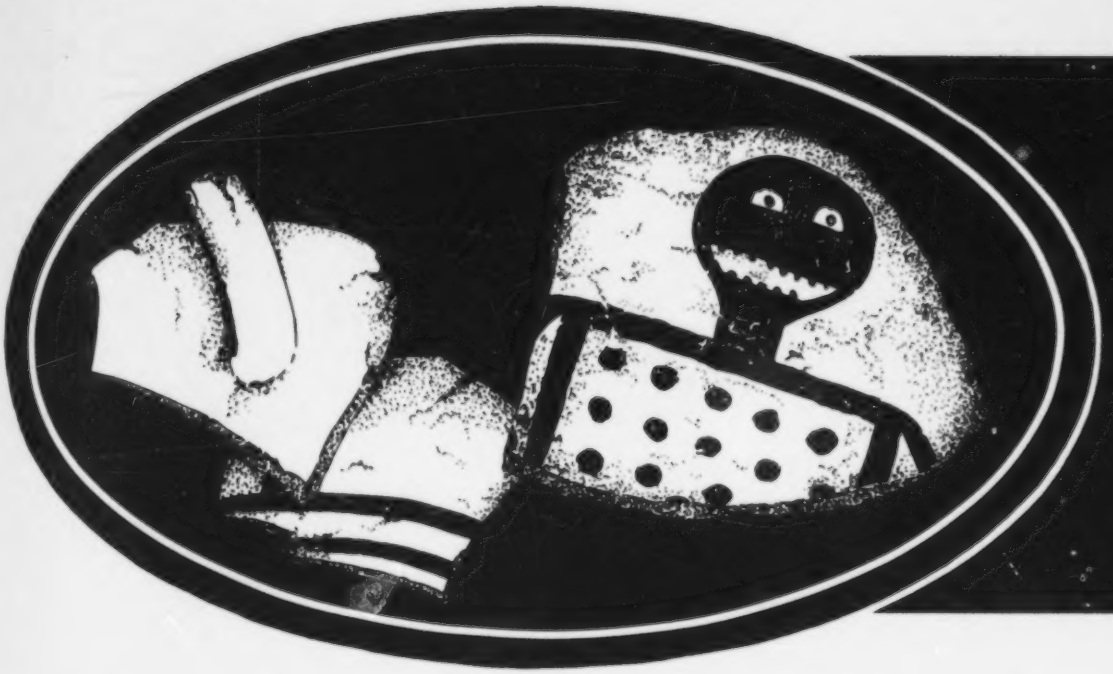
TABLE 3-9 -- CONTINUED

ACTIONS & TASKS	AFFECTED ISSUE(S)	WORK-MONTHS	COST (1990 $)	PRIORITY
Acquire legal access into Cebolla Canyon	"	2	TBD	I
Acquire private property next to Ranger Station that contains cultural resources ideal for interpretation	"	2	TBD	II
Acquire threatened cultural properties such as Pinole Site & Cerritos de Jaspe Complex	"	2	TBD	II
Acquire legal access &/or selected private land in Cerritos de Jaspe	"	3	TBD	III
Increase level of cultural resources inventory in NCA				
Complete Class II survey in Cerritos de Jaspe, Spur, & Breaks subunits (1,000 acres)	Cultural Resources Recreation	1	25,000	I
Complete Class II survey in Cebolla Wilderness Unit (1,500 acres)	"	1	40,000	I
Complete Class III inventory of 320 acres in Cebolla Canyon Complex	"	1	20,000	I
Complete Class III inventory of 720 acres in Dittert Site Complex	"	1	40,000	I
Complete Class II survey in Neck subunit (1,400 acres)	"	1	40,000	II
Complete Class III inventory of 320 acres in Citadel area	"	1	25,000	II
Complete Class III inventory of 640 acres in Tank Canyon area	"	1	36,000	II
Through reconnaissance, record & document all rock art sites in NCA	"	3	--	III
Complete Class II survey in Cerro Brillante subunit (1,400 acres)	"	1	40,000	III
Complete Class II survey in West Malpais Wilderness Unit (1,700 acres)	"	1	45,000	III
Complete Class II survey in Continental Divide subunit (1,000 acres)	"	1	25,000	III
Complete Class II survey in Brazo & Chain of Craters subunits (1,200 acres)	"	1	35,000	III
Complete Class III inventory of 320 acres in Spur area	"	1	25,000	III
Enhance protection of cultural resources through administrative measures				
Recommend to Congress that CU boundary be expanded to include 12,000-acre Tank Canyon area, portions of Dittert Site Complex, & archeological site adjacent to Ranger Station	All	1	--	I
Recommend to Congress that Dittert Site & Complex be added to list of Chacoan Archeological Protection Sites	"	1	--	I
Nominate Cebolla Canyon Complex to National Register of Historic Places	"	2	500	II
Nominate Pinole Site to National Register of Historic Places	"	2	500	II
Nominate selected homestead to National Register of Historic Places	"	2	500	III
Monitor changes in condition of cultural resources				
Establish & document annually formal photomonitoring stations at Dittert Site, Oak Tree Site, Pinole Site, & Arroyo Ruin	Cultural Resources	1/Y	500	I

TABLE 3-9 - CONCLUDED

ACTIONS & TASKS	AFFECTED ISSUE(S)	WORK-MONTHS	COST (1990 $)	PRIORITY
Compile inventory data & monitoring patrol packets for NCA	"	3	--	I
Implement minimal monitoring of cultural resources in NCA	"	1/Y	--	I
Establish baseline information for monitoring condition of surface assemblages & follow up at 2- to 5-year intervals at three index sites	"	1/Y	--	I
Expand photomonitoring to include Aldridge Panel, Lobo Canyon Petroglyphs, Citadel Panels, & selected homesteads	"	1/Y	500	II
Increase frequency of monitoring for illegal excavation throughout NCA	"	3/Y	--	II
Expand monitoring of surface assemblages to include six additional index sites	"	2/Y	--	II
Emphasize long-term conservation of scientific values inherent in cultural resources				
Write up excavations from Arroyo Site & arrange for permanent curation of artifacts	Cultural Resources	1	25,000	I
Implement policy of preferred avoidance rather than mitigation of impacts to cultural resources during development	"	--	--	I
Limit (but do not totally prevent) research involving collection or excavation at non-threatened sites	"	--	--	I
Inventory at least 1/4-mile radius around proposed visitor-use developments & consider potential secondary impacts	"	TBD	TBD	I
Locate existing collections from previous research & compile copies of project records	"	4	1,000	II
Maintain continuing program of interpretation & public education about cultural resources in NCA				
Present exhibits in BLM Ranger Station & Multiagency Center that include cultural resources	Cultural Resources Recreation American Indian Issues	1	10,000	I
After appropriate mitigation, incorporate prehistoric reservoir at Ranger Station into nature trail	"	1	20,000	II
Develop brochures about Dittert Site, homesteads, & other cultural resources within NCA	"	2	1,000	II
Incorporate information about cultural resources into Environmental Education Program	"	2	--	II

Note: 1/ Cost of one workmonth is $3,200; "/Y" indicates workmonth costs that recur annually. "--" indicates that workmonths and/or costs involved in task are minimal. "TBD" indicates that workmonths and/or costs are to be determined.



CHAPTER 4

Key Concerns

Chapter 4
Key Concerns

INTRODUCTION

This chapter clarifies the BLM's position on several important and controversial concerns that have emerged during development of this GMP. These concerns include the BLM's recommendation on the wilderness status of the Chain of Craters Wilderness Study Unit, the proposed routing in the NCA of a portion of the Continental Divide National Scenic Trail, American Indian access to the wilderness areas contained within the NCA, grazing management practices, and facility placement in the NCA.

CHAIN OF CRATERS WILDERNESS STUDY UNIT

The No Wilderness Alternative was selected in the Draft GMP as the proposed action for the Chain of Craters Wilderness Study Unit (WSU). Generally, public input on this concern falls into one of two categories: those who oppose wilderness designation (primarily local residents and American Indian groups) and those favoring wilderness designation (citizens outside of the Grants area). Both groups share the concern for maintaining the integrity of the WSU's resource values, but differ in how to accomplish this goal.

Because of access by adjacent owners, historical ties and uses of the area by local American Indians, and the nature of Navajo religious practices, the BLM cannot effectively administer the Chain of Craters as wilderness area without serious resource conflicts. Wilderness designation is perceived by American Indians in the area as causing significant hardships for them in carrying out their religious ceremonies, which are not necessarily confined to specific localities, times of year, or designated individuals. It would be extremely difficult under these circumstances to describe an administrative procedure to allow vehicular access under wilderness designation, prohibit the cutting of wood and collecting of plants, or define when vehicular use is appropriate for religious purposes.

As pointed out in the Draft GMP, NCA designation provides for a high level of protection and conservation for the area's natural and cultural resources. The BLM reaffirms its non-wilderness recommendation for the Chain of Craters WSU.

To conclude the wilderness review process for the Chain of Craters WSU, a final legislative Environmental Impact Statement is being prepared. This document is tentatively scheduled to be published in the spring of 1991. The final recommendation will be made through the Secretary of the Interior to the President, followed by congressional action. Only Congress can either designate the area as wilderness or release it from the wilderness review process. Pending congressional action, the Chain of Craters is being managed under the Interim Management Policy and Guidelines for Lands Under Wilderness Review.

If Congress agrees with the non-wilderness recommendation, the BLM will propose the Chain of Craters as an Area of Critical Environmental Concern (ACEC) to preserve its unique geologic features and status as a sacred ceremonial area used by Navajo Indians. The evaluation of the area for designation as an ACEC will be accomplished through an amendment to the Rio Puerco Resource Management Plan (RMP). This process will allow for additional public involvement and further clarify the BLM's proposal for how the area will be managed.

To enhance the protection of the natural resources in the Chain of Craters, an ACEC Management Plan will propose to: (1) put a cap on the number of Animal Unit Months allocated to livestock within the Chain of Craters ACEC; (2) allow construction of no additional range improvements to benefit livestock during the life of the current Rio Puerco Resource Management Plan; (3) close all roads except those identified in approved Allotment Management Plans and those necessary to carry out American Indian ceremonies; (4) allow only foot traffic on cinder cones within the ACEC; and (5) withdraw the lands from transmission line development. (Note: NCA designation prohibits mineral exploration and commercial sales of firewood.) This approach will preserve the Chain of Craters' natural values as well as allowing for access and use of the area in a way that will ensure resource protection.

CONTINENTAL DIVIDE NATIONAL SCENIC TRAIL

The National Trails System Act of 1968 (Public Law 90-543, as amended) authorized the study of the Continental Divide National Scenic Trail. The Draft GMP presents two alternate routes for potential designation as part of the trail. The routes are illustrated on Map 4-1.

A portion of the trail route was proposed in the Rio Puerco RMP and was established as a Special Management Area (SMA). This route segment is proposed to follow the Zuni-Acoma Trail and parallels NM 117 south to the mouth of Cebolla Canyon. From Cebolla Canyon, the proposed RMP route continues southeast through the Cebolla Wilderness Unit and the Brazo subunit. After the proposed RMP route leaves the NCA, it continues through the Sawtooth Mountains to Pie Town.

Through the public participation and scoping process, an alternate route (not proposed in the RMP) has been considered in the Draft General Management Plan. The route originates at the Multiagency Center located near Grants, New Mexico, and travels down the east side of the NCA along NM 117, past the BLM Ranger Station to the east trailhead of the Zuni-Acoma Trail. The route parallels portions of NM 53, which passes the National Park Service Visitor Center near Bandera Crater. It then turns south along segments of CR 42 and traverses the west side of the NCA through the Chain of Craters Wilderness Study Unit and the Cerro Brillante subunit.

Once the GMP route leaves the NCA, it connects at Pie Town to BLM-administered lands in the Socorro Resource Area. The connection may use existing state roads because most of the surrounding land is privately owned, although the BLM may also seek to acquire easements across private land. The existing roads include portions of paved NM 117 and NM 36, a dirt road.

The GMP route through the west side of the NCA most accurately corresponds to the planning criteria identified in PL 90-543. The criteria suggest that the route be located as close as possible to the geographic Continental Divide, utilize existing trails and rights-of-way, identify potable water sources, provide opportunities for user enhancement (i.e., drop points), avoid sensitive environmental resources, meet recreation needs as a hiker/horseback trail, an meet trail development needs cost-effectively.

American Indian concerns must be addressed for both routes. To ensure proper coordination betwee local tribes and state and federal land management agencies, both routes will be evaluated in a multiagency Environmental Assessment (EA)/Plan Amendment. The portions of the Continental Divide National Scenic Trail to be considered in the EA/Plan Amendment are from Pie Town to Cuba, New Mexico.

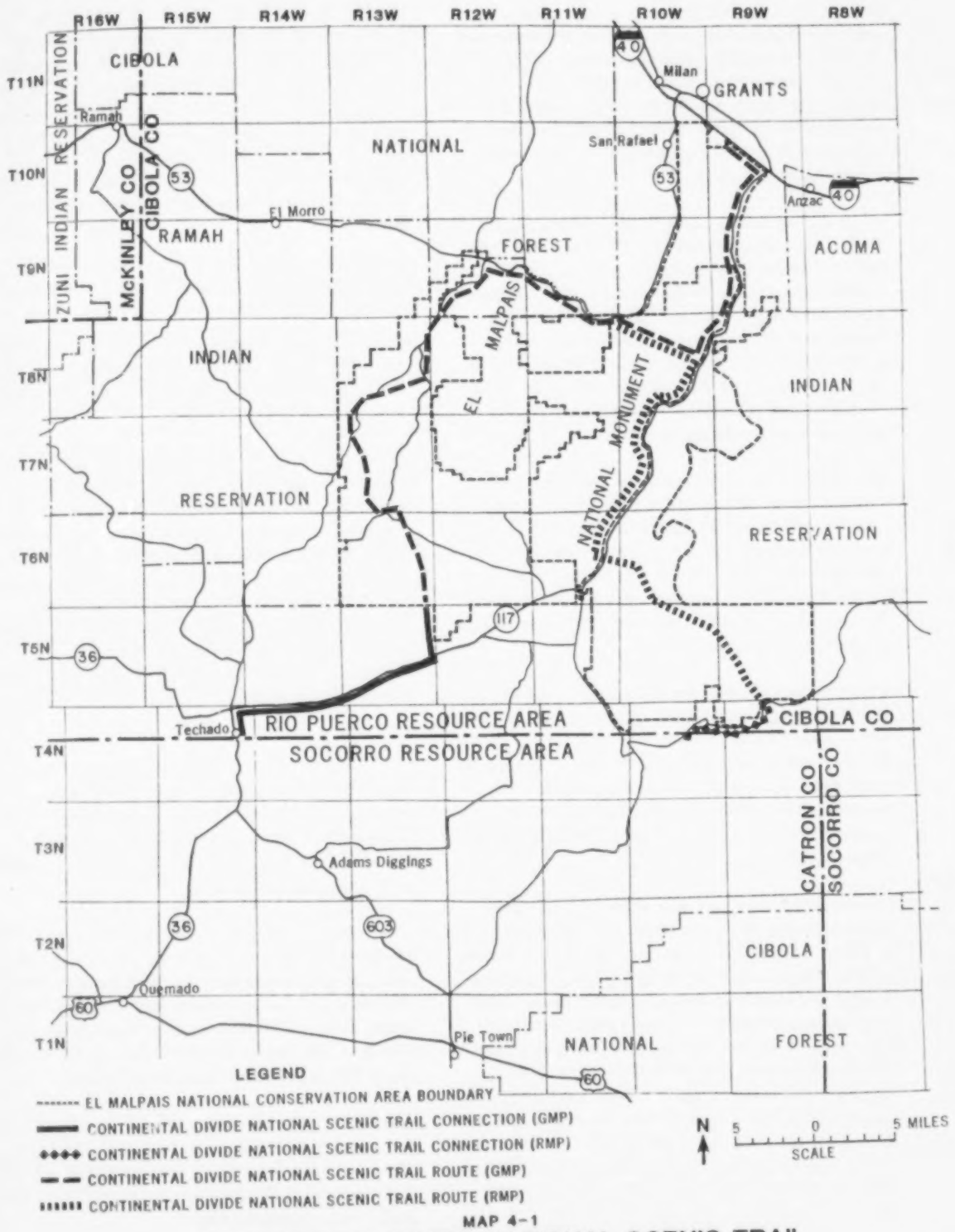
After the public participation and scoping process h been completed, the EA/Plan Amendment and Record of Decision will identify the final route. Th public scoping meetings are tentatively scheduled to be held in January, 1991, and the Record of Decisio is scheduled for release in August, 1991. A Federal Register Notice will complete the plan amendment process, revising all existing land use plans.

Although the EA is a multiagency planning document, the Bureau of Land Management will make the final recommendation on the two routes through the NCA. As the lead agency for the Continental Divide National Trail study, the U.S. Forest Service is required to submit a proposed trai route for formal designation by Congress.

AMERICAN INDIAN ACCESS TO WILDERNESS AREAS

During the public comment period on the Draft GMP, several comments were received concerning vehicular access into wilderness areas for American Indian cultural and religious purposes. As pointed out in the Draft GMP, and reaffirmed during the public comment period, American Indian groups fe strongly about the need to have vehicular access to carry out their traditional practices.

Other than local American Indian groups, other people also have commented on vehicular access. Some people have expressed a concern about the precedent that would be established if vehicular access into wilderness is allowed for American Indi cultural and religious purposes. In response to this concern, the BLM has carefully reviewed the public comments, the legislative guidance for the Wilderne Act, the American Indian Religious Freedom Act, and specific language contained in the El Malpais legislation.



MAP 4-1

CONTINENTAL DIVIDE NATIONAL SCENIC TRAIL PROPOSED ROUTES

According to the Wilderness Act, wilderness areas are to be managed to provide for the protection and perpetuation of their wilderness values, and to prevent deterioration caused by other resource activities or visitor use. Based on this principle of nondegradation, travel within a BLM-administered wilderness is normally achieved by non-motorized, non-mechanized means.

However, according to the El Malpais legislation, the BLM must also administer the NCA in a way that ensures the continuation of the opportunity for traditional American Indian cultural and religious practices. Congress has specifically directed the Secretary of the Interior to ensure nonexclusive access to the wilderness areas in the NCA for such purposes. As the result of this direction, the BLM is considering all reasonable alternatives to determine the most appropriate means for access.

For example, if tribal leaders who perform certain ceremonies are elderly and in poor health, the use of a motor vehicle may be found to be the only reasonable alternative that will ensure their access into the wilderness areas. In this instance, the use of a motor vehicle to transport a religious leader to a site in wilderness may be approved if this use will not degrade wilderness values.

Congress also directed the BLM to seek the advice of local Indian tribes and other interested parties on the access issue. The BLM will work with the All Indian Pueblo Council and interested citizens to develop a special policy provision and an administrative procedure that clarify the special conditions and locations for which vehicular use in wilderness areas is appropriate.

In conclusion, the BLM may allow some vehicular access into the wilderness areas in the NCA for traditional cultural and religious purposes. However, such access will normally be by non-motorized, non-mechanized means consistent with the preservation of wilderness character. In cases where access by motor vehicle is determined by the BLM to be the only reasonable alternative and this use will not degrade wilderness values, it may be approved. This approval will be based in part on the advice of local Indian tribes. Such motor vehicle use will normally only be permitted into those portions of a wilderness area where it occurred before the area's designation as wilderness.

In working with local tribes and other interested parties, the BLM's goal is to develop a definitive procedure that can largely be administered through a cooperative effort with tribal governments. By the spring of 1991, the BLM plans to establish a dialogue with local tribes that will result in an access policy and an administrative procedure. Until this time, the need for vehicular access will be reviewed by the Rio Puerco Resource Area Manager on a case-by-case basis.

"I" CATEGORY GRAZING ALLOTMENTS

Under the Low Change Alternative, the Draft GMP states that forage condition for livestock in the NCA would be maintained in its existing condition. This statement should be clarified.

Allotments in the "I" management category are managed to improve range trend and ecological condition. The BLM's goal and management prescription is not to maintain the current condition of the "I" allotments, but to improve it. As stated in the Draft GMP, the selective management category for any "I" category allotment will be changed as ecological conditions improve and resource conflicts are resolved. Such improvements will be documented as part of monitoring the NCA's natural resource conditions.

KIOSKS

In the Draft GMP, four kiosk locations were identified for construction at NCA entrance points. After further review and coordination with the National Park Service, the BLM has determined that only two kiosks are needed.

The highest priority for kiosk construction is in the southern part of the NCA, at the junction of NM 117 with CR 42 (refer to Map B). This location will allow orientation of visitors coming into the NCA from the south. The second priority is the kiosk in the area of Ojo del Gallo Spring (proposed for wildlife viewing) along NM 53, on the north side of the NCA.

The BLM no longer plans to develop a kiosk on the north end of the NCA along NM 117. The BLM Ranger Station (currently under construction) will lie 9 miles south of this location and should serve as a sufficient orientation point.

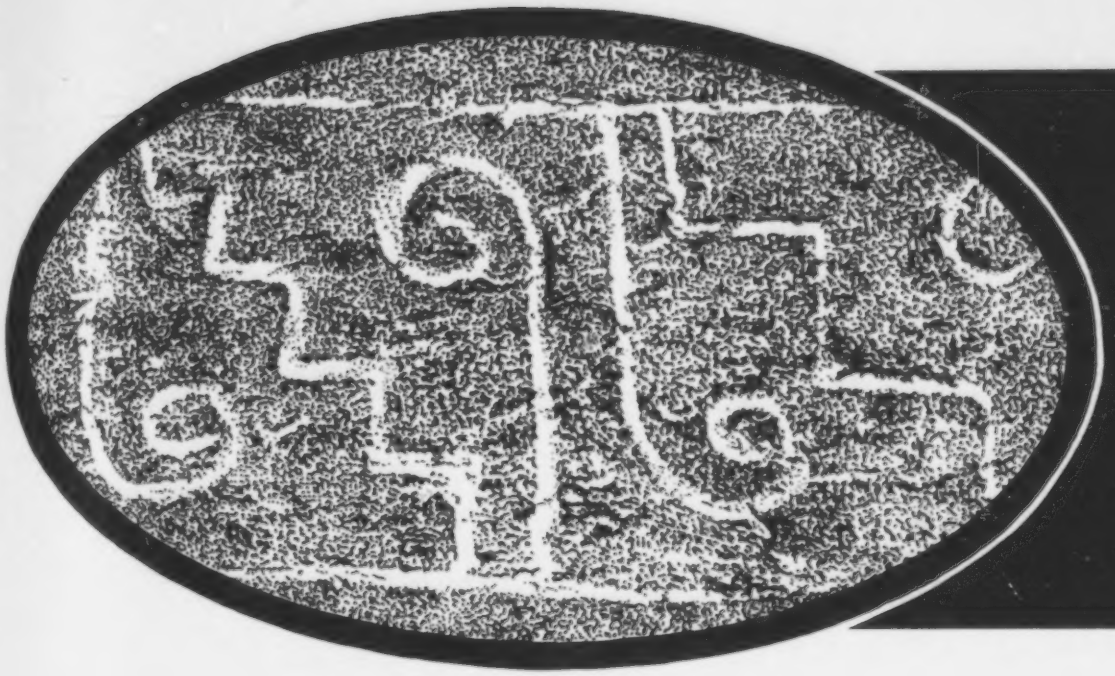
The BLM has also decided against construction of a fourth kiosk, on the southwest side of the NCA along NM 53. Instead, the BLM will coordinate with the New Mexico Highway Department to add information about the monument and the NCA to the State Historical Marker just west of NM 53. The NPS Headquarters will be constructed in this area, serving as another focal point for visitor orientation.

RIM TRAIL

The Draft GMP identified the planned location of the Rim Trail between La Ventana and the South Narrows. After further consultation with the National Park Service (NPS), the BLM proposes to move the trail slightly back from the mesa edge. The intention is to screen from view the kipukas on the south side of the monument. The kipukas are easily impacted, so the NPS and the BLM are developing a strategy for controlled visitation. Moving the trail will not unnecessarily restrict the spectacular views possible from the mesa top.

SOUTH NARROWS DEVELOPMENT

The Draft GMP discusses development plans for the South Narrows. The NPS is now considering sharing the BLM's South Narrows parking area as the trailhead for their proposed trail along the Narrows, consolidating development in this area.



CHAPTER 5

Public Involvement

Chapter 5
Public Involvement

Section 1
Introduction

Public involvement has been an important part of developing this General Management Plan (GMP). Such involvement has been encouraged in a number of ways, including newsletters and workbooks, as well as public workshops, meetings, and open houses. Coordination meetings have been held with local American Indian groups during the entire process. In addition, the Bureau of Land Management (BLM) has received letters written by the public at every stage of preparation of this GMP. Through these means the public has provided the BLM with facts, ideas, and opinions about how the resources of the National Conservation Area (NCA) should be managed.

This chapter summarizes the results of this public involvement, including the formal public comments received during preparation of the Final GMP. This chapter begins with a brief description of the history of public involvement during development of the GMP. Following is a list and discussion of those agencies and organizations that received copies of the GMP. Finally, this chapter summarizes the overall content of the public comments and then responds to them individually.

Section 2
History of Public Involvement in GMP Development

During the first set of public meetings on the general management plans for El Malpais, the BLM and the National Park Service (NPS) sought public input on the issues that should be addressed. About 50 individuals attended these two meetings held in Grants and Albuquerque on June 15 and 16, 1988. Nine issues of concern for the BLM were identified during these public meetings. The issues include Recreation, Facility Development, Wilderness, Wildlife Habitat, Range Management, Natural Resources, Land Protection, Cultural Resources, and American Indian Issues.

In the second round of public meetings (held in December, 1988), the BLM presented three alternative levels of management for the NCA, including the Preferred Alternative, the High Change Alternative, and the Low Change Alternative. Based on public input, the High Change Alternative was dropped from further consideration. The Preferred and Low Change alternatives have been carried forward for analysis as described in Chapter 2, Section 7 of the Draft GMP.

The BLM and the NPS have published and distributed four editions of the El Malpais Update, a newsletter intended to inform the public about the status and current direction of the GMP planning process. Each edition was mailed to over 100 recipients. The June and August, 1988, editions highlighted the nine issues of concern referred to above. In December, 1988, the Update included an Alternatives Workbook that solicited written public responses concerning a number of planning issues. The April, 1989, edition provided feedback, summarizing the responses received in response to the workbook.

In April, 1990, additional public meetings were held in Grants and Albuquerque to gather public input on the Draft GMP. These consisted of an afternoon open house followed by formal hearings in the evening. The formal hearings were held to take testimony on the wilderness suitability of the Chain of Craters Wilderness Study Unit. Attendance at the open houses and hearings is shown in Table 5-1.

TABLE 5-1

ATTENDANCE AT CHAIN OF CRATERS WILDERNESS HEARINGS

Location	Date	Open House Attendance	Hearing Attendance	Number Testifying
Grants	April 18, 1990	53	3	2
Albuquerque	April 19, 1990	44	6	5

Section 3
Document Recipients

The Draft GMP was released in April, 1990, and was distributed to over 800 interested persons, agencies, and organizations. Table 5-2 is a partial listing of the various federal, state, and local agencies and organizations that have received copies of the draft and final planning documents.

TABLE 5-2

PARTIAL LISTING OF GMP RECIPIENTS

U.S. Congress
The Honorable Pete V. Domenici
The Honorable Jeff Bingaman
The Honorable Bill Richardson

Federal Agencies
Advisory Council on Historic Preservation
Agricultural Stabilization & Conservation Service
Bureau of Indian Affairs, Southern Pueblos Agency
Bureau of Indian Affairs, Eastern Navajo Agency
Bureau of Reclamation
Department of Justice
Department of Transportation
Farmer's Home Administration
Fish and Wildlife Service
Forest Service, Southwest Region
Forest Service (various forests and ranger districts)
National Park Service, Southwest Region
National Park Service (various parks and monuments)
Soil Conservation Service

State Agencies
Governor Garrey Curruthers
Bureau of Mines
Department of Agriculture
Department of Energy and Mining
Department of Finance and Administration
Department of Game and Fish
Environmental Improvement Division
Environmental Law Center
Natural Resources Department
Range Improvement Task Force
State Engineer
State Highway Department
State Historic Preservation Office
State Land Office
Tourism Department

Local Governments
Acoma Pueblo
Bernalillo County Commission
Bernalillo County Planning Commission
Cibola Convention Authority
Cibola County Commission
City of Albuquerque
City of Grants
Coalition of Arizona/New Mexico Counties
Cochiti Pueblo
Grants Chamber of Commerce
Isleta Pueblo
Laguna Pueblo
Lake Valley Navajo Chapter
Navajo Tribal Council
Ramah Navajo School Board
Ramah Navajo Chapter
Sandoval County Commission
Santa Ana Pueblo
Torrance County Commission

TABLE 5-2 - CONCLUDED

Village of Corrales
Village of Milan
Zia Pueblo
Zuni Pueblo

Businesses
Dames and Moore
El Morro Est. Talavera Corp.
El Paso Natural Gas
Executive Marketing Corporation of Arizona
First National Bank of Albuquerque
G.S. & S. Partnership
Hagar Group
Hampton Builder's Corporation
Headquarters West Ltd.
Hunter Corporation
Interpress Properties
Jerome P. McHugh and Associates
Key Realty Inc.
Meridian Oil Company
Moleres Ranch Inc.
New Mexico-Arizona Land Company
Pitchford Properties
Pitchford-Stephenson Properties
Quivira Research Center
Rio Salado Systems
Rockafellow Realtors
Sandia Man Films
Sunset Inc.
Tierra Verde Inc.
Western Land Bank
Western Terrain Inc.
Wilderness Center
Williams Company
Zuni Archaeology Program

Institutions
California State University, Chico
New Mexico State University
New Mexico Natural History Institute
University of New Mexico Foundation

Newspapers
Albuquerque Journal
Arizona Sun
Carlsbad Current Argus
Farmington Daily Times
Gallup Independent
Grants Daily Beacon
Harrison Times
Las Cruces Sun News
Las Vegas Daily Optic
Los Alamos Monitor
New Mexico Business Journal
Raton Daily Ranger
Rio Rancho Observer
Sandoval Sentinel Star
Santa Fe New Mexican
Silver City Daily Press
Socorro Defender Chieftain
Springer News Bulletin
Taos News
Truth or Consequences Herald
United Press International

Oranizations
American Wilderness Alliance
American Wildlands
Amigos Bravos
National Audubon Society
National Wildlife Federation
New Mexico BLM Wilderness Coalition
New Mexico Cattle Growers Association
New Mexico Wildlife Federation
Plateau Sciences Society
Public Land Users Association
Sandia Mountains Wildlife Association
Sierra Club
The Nature Conservancy
The Wilderness Society
Tonantzin Land Institute
Wildlife Legislative Fund

Section 4
Public Comments and Responses

During the formal hearings and in response to the Draft GMP mailing, the BLM received 23 oral presentations and comment letters. Those agencies, organizations, individuals, and American Indian groups that provided formal comments are listed Table 5-3.

TABLE 5-3

LIST OF COMMENTORS

1. Advisory Council on Historic Preservation
2. New Mexico Health and Environment Department
3. Continental Divide Trail Society
4. Sydney Walter
5. Quivira Research Center
6. Ramah Navajo Chapter
7. New Mexico Wilderness Study Committee
8. Arnold and Carolyn Keskulla
9. Jan Cummings
10. Jim Fish
11. Eric Ginn
12. Judith S. Bishop
13. Guy E. Dahms
14. John Pamperin
15. John Somers, New Mexico Wilderness Coalition
16. Robert Tafanelli
17. Petition from 18 Mountain Bikers
18. Arthur Loy
19. Jack Moleres (Grants Wilderness Hearing)
20. Jim Fish (Albuquerque Wilderness Hearing
21. Marian Miller (Albuquerque Wilderness Hearing)
22. John Somers (Albuquerque Wilderness Hearing)
23. Mike Mechenbier (Albuquerque Wildernes Hearing)

The largest number of comments pertain to wilderness issues. Many commentors favor wilderness designation of the Chain of Craters Wilderness Study Unit, while others oppose such a designation. Comments generally oppose large-scale recreational developments and vehicle- or bicycle-oriented recreation in the NCA, especially in the wilderness areas. Some wilderness proponents oppose grazing and question the precedent of allowing vehicular access for American Indians in the two designated wilderness areas.

Other comments concern the proposed Continental Divide Trail and cultural resources management in the NCA. The Continental Divide Trail Society favors the eastern trail route proposed in the Rio Puerco Resource Management Plan, while wilderness proponents favors the western route proposed in the GMP. Comments about cultural resources are unanimous in support of the management proposals and provide constructive suggestions on content and methodology.

The nature and number of public comments are such that substantial revisions of the Draft GMP have not been necessary. As a result, this Final GMP presents only minor modifications to the draft (refer to Chapter 6 for these modifications).

The section below reprints the comments receive from all 23 commentors. Each letter and oral presentation has been reviewed to determine wh it meets the required criterion for response (i.e., discussion of the adequacy of the draft document Substantive comments, which are those presentin new data or questioning facts or analyses, have b fully evaluated and given responses that are print beside each letter.

Each letter and hearing commentor has been assigned a number. Within the letters, each sepa comment pertaining to the adequacy of the Draft GMP has also been identified with a number. Th individual comments are numbered 1-1, 1-2, 1-3, so on. The BLM responses are keyed to these numbers.

The hearing transcripts are not reprinted in full. Only the portions with substantive comments tha require response are printed. Complete transcri are on file at the Rio Puerco Resource Area Offi

1

Advisory Council On Historic Preservation

The Old Post Office Building
1100 Pennsylvania Avenue, NW, #809
Washington, DC 20004

Reply to: 730 Simms Street, #401
Golden, Colorado 80401

May 1, 1990

Al Albee
Area Manager
Bureau of Land Management
Rio Puerco Resource Area
435 Montano Road NE
Albuquerque, NM 87107

REF: El Malpais National Conservation Area, Draft General Management Plan

5-5

Dear Mr. Albee:

We have completed our review of the Draft General Management Plan (GMP) for the El Malpais National Conservation Area (NCA), New Mexico. We find the GMP to provide a thorough and constructive presentation of the Bureau's proposed management, protection, and preservation actions regarding cultural resources and traditional cultural properties in the NCA, as well as an insightful discussion of management concerns emphasizing future scientific use within the Conservation Unit and the Wilderness Units.

The preferred alternative, and the various prescriptions offered in the GMP, appears to provide the most appropriate direction for the Bureau to pursue in managing cultural resources on these public lands with respect to long-term preservation and scientific use. We also support the Bureau's proposal to expand the NCA boundary by acquiring Tank Canyon and certain private land sections at least in part because of the significant cultural resources present in those areas. Finally, the No Wilderness Alternative for Chain of Craters is compatible with the Bureau's multiple use perspective, and comports with P.L. 100-225's intent to not restrict Native American access to traditional areas for religious and other cultural practices.

The discussion in the GMP of the Interpretation and Public Education Plan and the development of a Field Learning Center appears to be consistent with the spirit and intent of the El Malpais legislation, and we support their implementation. We recommend that the development of management prescriptions and actions proposed in Table 9-1 for interpretation and public education in the NCA be closely coordinated with similar efforts being pursued by the National Park Service for the El Malpais National Monument.

1-1

RESPONSES TO COMMENT LETTER 1

1-1. The BLM interpretive objectives that guided the development of the Interpretation and Public Education Plan (Chapter 9 of the Draft GMP) were cooperatively formulated by BLM and NPS planners. Continued cooperation during implementation of the plans is expected.

1 (continued)

The objectives of the Cultural Resources Management Plan, namely to manage cultural resources for future scientific use and for those in wilderness areas to conserve them in a stable condition for future use, have merit and we look forward to their implementation as specified in Table 13-4 of the GMP. We do recommend, however, that the Bureau consider increasing the levels of inventory for all units of the El Malpais NCA to aid in identifying important sites vulnerable to vandalism, site erosion, or other effects that may be diminishing their significant qualities for future use. 1-2

We have also enclosed specific comments on the GMP for your consideration. Thank you for the opportunity to review and comment on the GMP for the El Malpais NCA. If you have any questions, please contact our staff, or myself, at (303) 236-2682 or FTS 776-2682.

Sincerely,

Claudia Nissley
Director, Western Office
of Project Review

Enclosure

5-6

1 - Continued

1-2. The cultural resources inventories proposed in the Draft GMP will require approximately $30,000 per year through the life of the plan. The BLM agrees that higher levels of inventory are desirable; if increased funding is available for this purpose, the BLM will attempt to exceed the goals established in the GMP.

Specific Comments on the GMP

1-3 Page 1-15 and Table 1-2 We recommend the inclusion of variables regarding cultural resources to the analysis of natural capabilities and limitations and management considerations for the eleven BLU's in the El Malpais NCA. Similar analytical revisions and supplements would be useful for Table 1-3 as well.

Page 2-1 We request the opportunity to review Chapters 7 and 8 of the GMP when they are available.

1-4 Page 13-7, Table 13-3 Please clarify why properties managed for scientific use need not be conserved if appropriate research or data recovery is proposed. It would seem appropriate to conserve sites for scientific use over the long-term, because of changing recovery methods and techniques, research priorities, and different theoretical and methodological perspectives that have yet to be developed for the archaeological discipline.

1-5 Page 13-13 While the use of employees or volunteers to monitor the condition of cultural resources is commendable and certainly cost-effective, we think that the delegation of such a program away from the cultural resources specialist should be contemplated only after careful review of the scope of the program. We recommend that the Bureau consider the establishment of a stewardship program, under the supervision of professional archaeologists, to carry out their monitoring needs for cultural resources in the NCA.

5-7

best copy available

1 - Concluded

1-3. High densities of cultural resources are noted in Table 1-2 for Biophysical Land Unit I, based upon preliminary evaluation of the recent cultural resources inventory. A more rigorous analysis relating the occurrence of cultural resources to the BLUs is planned.

1-4. The BLM agrees that properties allocated for scientific use require conservation. The sentence in question should read "Properties need not be preserved if appropriate research or data recovery is proposed." The discussion under "Scientific Use" on page 13-8 elaborates on this theme.

1-5. The BLM will ensure that any program of systematic monitoring is carried out under adequate professional supervision. Certainly some activities such as characterization of artifact assemblages at index sites should be done under extremely close supervision. Other forms of monitoring such as photodocumentation or inspection of sites for recent vandalism can be accomplished by volunteers or other employees under a stewardship program with less direct supervision. In any case, training and professional review of monitoring results will clearly be required.

New Mexico Health and Environment Department

GARREY CARRUTHERS
Governor
DENNIS BOYD
Secretary
MICHAEL J. BURKHART
Deputy Secretary
RICHARD MITZELFELT
Director

Al Abee, Area Manager
Rio Puerco Resource Area
Bureau of Land Management
435 Montano Road NE
Albuquerque, NM 87107

Dear Mr. Abee:

Attached are our comments concerning the Draft General Management Plan: El Malpais National Conservation Area, April 1990.

Please call me (827-2843) if you have any further questions.

Cordially,

Gedi Cibas Ph.D.
Environmental Impact Review Coordinator

Enclosure
GC/km

5-8

– ENVIRONMENTAL IMPROVEMENT DIVISION –
Harold Runnels Building
1190 St. Francis Dr.
Santa Fe, New Mexico 87503

New Mexico Health and Environment Department

GARREY CARRUTHERS
Governor
DENNIS BOYD
Secretary
MICHAEL J. BURKHART
Deputy Secretary
RICHARD MITZELFELT
Director

MEMORANDUM

TO: Gedi Cibas, Program Support Bureau

FROM: Jim Platt, Surface Water Quality Bureau

DATE: 2 May 1990

SUBJECT: Draft General Management Plan: El Malpais National Conservation Area. Prepared by the USDI-Bureau of Land Management

EID File #: 535 ER

Staff of the Surface Water Quality Bureau have completed our review of this document. There are no conflicts with EID administered laws or regulations. The preferred alternative provides greater protection and improvement of the area than does the no action alternative.

Adequate protection of surface water resources will occur if the management prescriptions for cooperative agreements, land acquisition and visitor education are attained. The BLM will, however, have to actively manage the area to insure that the prescriptions are effectively implemented.

JP/bjm

– ENVIRONMENTAL IMPROVEMENT DIVISION –
Harold Runnels Building
1190 St. Francis Dr.
Santa Fe, New Mexico 87503

3

CONTINENTAL DIVIDE TRAIL SOCIETY
P.O. Box 30002 Bethesda MD 20824

May 18, 1990

Bureau of Land Management
Al Abee, Area Manager
Rio Puerco Resource Area
435 Montana Road NE
Albuquerque, New Mexico 87107

Gentlemen:

Over the past several years the Continental Divide Trail Society has urged land managing agencies in New Mexico to engage in Continental Divide Trail planning activities designed to achieve the maximum outdoor recreation potential envisaged by the National Trails System Act. Both the Forest Service and the Rio Puerco Resource Area of BLM have been responsive to our concerns as they relate to the northern part of the State. Unfortunately, despite our earlier comments in the El Malpais planning process, the General Management Plan for the El Malpais National Conservation Area disregards our views and substitutes a proposal that neither engages in a reasoned analysis of potential alternatives nor considers the relevant statutory policies governing the development of the Continental Divide Trail. This is contrary to both the National Environmental Policy Act and the National Trails System Act.

5-9

The first major deficiency is a problem of improper segmentation. It is well established that when an agency engages in planning for a linear corridor it is essential that the planning must consider not only the location of a particular segment, but also the alternatives that are appropriate for the entire span between logical endpoints. In the case of the CDT, such endpoints could be located at the summit of Mt. Taylor on the north and Pie Town on the south - a linear distance of about 100 miles (though considerably longer on the ground). From Mt. Taylor, the route could either descend to Grants or bypass to the west of Grants. Farther south, the route could continue through the Zuni Mountains to NM 53 (near Bandera Crater or near the Zuni-Acoma Trailhead) or through The Neck. The route could then proceed south by various ways - including one route south via Cebolla Canyon to the Mertz Ranch (as previously contained in the Rio Puerco LMP) and then south through the Sawtooth Mountains to Pie Town. BLM's proposal is flawed because it focuses too narrowly on the confines of the NCA alone.

3-1

Within the scope that has been addressed, however, we find a total lack of sensitivity to user needs and statutory direction.

RESPONSES TO COMMENT LETTER 3

3-1. The alternatives presented in the Rio Puerco Resource Management Plan (RMP) and the El Malpais General Management Plan (GMP) will be carried forward in a multiagency Environmental Assessment (EA)/Plan Amendment. This EA/Plan Amendment will address alternative routes for the Continental Divide National Scenic Trail (CDNST) between Pie Town and Cuba, New Mexico. The lead agency for the planning process is the U.S. Forest Service, with participation from the BLM and the National Park Service. Public scoping is tentatively scheduled to begin in late January, 1991.

Rio Puerco Resource Area May 18, 1990

3-2 We would have expected BLM to evaluate alternatives, within an appropriate length of the corridor, by applying the relevant criteria of the National Trails System Act. The starting point, therefore, is the Congressional direction that the Trail should be "so located as to provide for maximum outdoor recreation potential and for the conservation and enjoyment of the national scenic, historic, natural, or cultural qualities of the areas through which such trails may pass." 16 U.S.C. 1242(a).

3-3 Logically, then, an agency should inventory the pertinent qualities of an area and then determine how they may best be conserved and enjoyed in a manner that provides for maximum outdoor recreation potential. This endeavor should be carried out in accordance with the further guidance contained in the Comprehensive Plan for the Trail, prepared by the Forest Service, BLM, and the National Park Service (cited at 3-13, but not otherwise discussed). Among the considerations reflected in that document are the desirability of enhancing nonmotorized recreation opportunities and the need for reliably available drinking water sources. Accommodation of these concerns is necessary if the statutory policies are to be carried out.

3-4 Turning now to the recommended location in the draft NCA plan, we find that it amounts for the most part to a walk along paved highways - hardly the sort of experience that Trail users seek or that Congress intended. South from Grants, the proposed route follows Interstate-40 and "an efficient asphalt-surfaced highway [NM 117] with a design speed of 55 mph" for about 15 miles; then after a short traverse of El Malpais along the Zuni-Acoma Trail, the user would walk another several miles along "a well-maintained asphalt highway [NM 53]" before turning south for 10 more miles along a "maintained (graded) dirt road," County Road 42, that is proposed for BLM/NPS development. Then south of the Conservation Area, the corridor would lead once again to Highway 117 - and then another 40 miles on high-standard roads to Pie Town.

The proposal is an utter travesty of a national scenic trail.

Setting aside the segmentation issue, and thus assuming for the moment a terminus in Grants, it should not be necessary to follow highways south to the Zuni-Acoma Trail (because there are alternatives in the national forest and through The Neck).

We wish to focus, however, on the issue addressed at page C-3 with respect to the selection of the "east route" [RMP] or "west route" [GMP] through the national conservation area. The east route is clearly far superior.

Let us examine the stated reasons for departing from the RMP location. First, there is concern for the highly erodible soils on

3 - Continued

3-2. The alternatives evaluated in the Draft GMP were presented to the public in the December, 1988, edition of the El Malpais Update newsletter. These alternatives include the BLM's RMP and GMP proposals for the CDNST. Based on public comments, additional alternatives may be evaluated in the upcoming multiagency EA/Plan Amendment.

3-3. Route evaluation and selection will be based on the criteria contained in the Comprehensive Plan you mention.

3-4. This alternative for the CDNST parallels paved highways in some places, but the roads would not be used as a treadway. Map 3-5 in the Draft GMP indicates the trail would be at least 350 yards away from any road it parallels. Vehicular traffic along these roads is minimal. This alternative also provides several opportunities for resupply and drop-off points. These would be located in Grants, at the Multiagency Visitor Center near I-40, at the BLM Ranger Station and the NPS Visitor Center, and at two trailhead points located near CR 42 in the NCA. This alternative affords the user an experience in geographic and geologic diversity. The user will encounter sandstone bluffs along NM 117; lava flows along the Zuni-Acoma Trail; and ice caves, lava tubes, and cinder cones in the western portion of the NCA.

3-5 the east side of the NCA. There is insufficient information to enable commenters to assess either the existing situation or the extent of the impacts that may be anticipated from CDT use. For the foreseeable future, the Trail in this arid terrain is unlikely to draw any appreciable traffic. Perhaps there would be 50 visitor days per year by travelers on foot - but even if it were ten times that much, there can hardly be a substantial impact. (And whatever impact there may be can surely be mitigated by appropriate physical and regulatory measures, including if necessary restrictions on pack stock). We are dealing, after all, with a travelway that according to Map B is already a primitive road.

3-6 The second argument for the western route is avoidance of a high density cultural site area. On the contrary, we would view the presence of such sites as a feature that would aid in the enjoyment of "cultural qualities," and backpackers, we submit, are unlikely to act in a manner inconsistent with the conservation of those qualities. But here again the argument is overstated. On the west route the relative density of Anasazi sites is 10 per section, while on the east route (according to Map 1-3) it is 10 to 20 per section - as contrasted to the much higher densities (50 to 60 per section) north and south of the RMP route.

3-7 There is also reference to potable water availability. But on the west route, how many miles must be traveled before one finds water south of the Bandera Crater area? We assume that on the east route water would be, or could be, available at the Ranger Station, La Ventana, Cebolla Spring, and Mertz Ranch.

3-8 Once you leave NM 117 at North Pasture, the RMP route avoids highways for the rest of the way to Pie Town. To be sure, there are a few sections between the NCA and the Cibola National Forest that are not now in public ownership. The presentation at page C-3 implies that the route must be located on existing roads where land is privately owned. But this is contrary to the Trails Act - and in fact it is contrary to BLM's own commitment with respect to its preferred alternative to attempt to acquire easements. (See p. 3-32.) Under Section 7 of the statute, 16 U.S.C. 1246, specific provisions are made for the acquisition of rights-of-way by a variety of methods (subject, however, to the appropriations limitation of Section 10(c)(1)). If there is a route that better accomplishes the purposes of the Trails Act, BLM has a duty to undertake responsible efforts to secure the needed right-of-way.

Another principle of the Trails Act (Section 7(a)(2)) is that the "advice and assistance of ... private organizations ... and land users concerned" is to be obtained in selecting rights-of-way for the Trail. We have repeatedly extended to BLM our advice and assistance. After due consideration, BLM may conclude that some other course of action may better serve the public interest. But

3 - Concluded

3-5. A complete description of the affected environment of the NCA is contained in the Draft GMP in Chapter 3, Section 3; Chapter 4, Section 5; Chapter 5, Section 5; and Chapter 6, Section 2. The affected environment is described under the heading "Current Situation" in Chapters 3 through 5 and under "Existing Resources and Environment" in Chapter 6.

Planning assumptions include increased recreational use of the NCA (207,600 people by the year 2000; refer to the Draft GMP, page 3-11). This increased visitation would include at least some people hiking the portion of the CDNST that traverses the NCA, in addition to long-distance hikers using the entire trail. However, no guaranteed method exists to predict the actual number of users. The aridity of the area tends to favor short-term and day-use of the trail.

3-6. Map 1-3 in the Draft GMP shows the relative density of Anasazi sites based on Class II inventory. Each section of the NCA containing a datum point was surveyed with transects spaced 100 meters apart. The contour intervals on the map were drawn to enclose areas containing at least 10 sites per section. For the most part, the western route traverses a surveyed area that contains fewer than 10 sites per section.

However, the western route also passes through an area with a higher Anasazi site density, near the BLM Ranger Station and the NPS cultural site, Las Ventanas (refer to Map 3-3 in the Draft GMP for the location of this site). These sites would provide cultural qualities for the enjoyment of hikers of the trail.

3-7. On the proposed western trail route, potable water would be available at the Multiagency Center, the BLM Ranger Station, and the NPS Visitor Center. No public water supply is available to trail users south of Bandera Crater within the NCA.

Potable water availability on the east side is also limited. The eastern trail route proposed in the RMP does not pass by the BLM Ranger Station, and no plans exist to develop water at La Ventana. Although the BLM proposes to acquire Cebolla Spring and the Mertz Ranch, both are still privately owned and may not be available as a public water source.

3-8. The BLM will attempt to acquire easements and appropriate rights-of-ways within the NCA where the trail crosses private land. As stated above, the U.S. Forest Service is the lead agency for the Continental Divide National Scenic Trail. The BLM will continue to work with the Forest Service and the NPS to provide a coordinated effort in formulating a recommended route for the CDNST.

here there is no indication that BLM has made a conscientious effort to consider our advice. (In an undated letter from Pat M. Hester - your reference 8321(017) - we were informed that our comments favoring an eastern route within the NCA "are being taken into consideration," but for the reasons stated above we regard such consideration to be superficial and founded on erroneous premises.) In addition to our correspondence with the Rio Puerco Resource Area, you are no doubt familiar with our successful protest to the Socorro Resource Area, a duplicate copy of which is enclosed herewith for your information.

We renew our offer to provide advice and assistance to BLM, and we trust you will view the comments herein as an expression of our desire to work with you. But we must insist upon faithful adherence to the farsighted policies set out in the laws cited above, and intend to pursue whatever avenues may be available to us to ensure that those policies are honored.

Sincerely,

James R. Wolf
Director
(301) 493-4080

5 - 12

Dear Mr Shea - 5-25-90

Please support wilderness status for chain of Craters WSA in the Malpais National Conservation Area. It is a magnificent area that will make a unique addition to our wilderness system.

S Walter

5

QUIVIRA RESEARCH CENTER

3017 Commercial NE
Albuquerque, New Mexico 87107
(505) 344-2755
1309 Notre Dame NE
Albuquerque, New Mexico 87106
(505) 255-9264

May 25, 1990

Bureau of Land Management
Al Abee, Area Manager
Rio Puerco Resource Area
435 Montaño Road NE
Albuquerque, NM 87107

Dear Mr. Abee:

I have read the cultural resources portions of the Draft El Malpais National Conservation Area General Management Plan and have the following comments:

5-1 1. It is clear that BLM is making efforts to perform initial archeological inventories within the NCA. However, BLM should develop long-range plans to perform 100% inventory of the entire NCA. It is impossible to manage what you don't know is there.

2. BLM should require that any research, whether by BLM or by an outside individual or organization, will result in a professional report acceptable to BLM and to the SHPO. In addition, all reports should contain at least an abstract written in a style understandable to the public. Some reports should be accompanied by a companion volume in popular style.

5-2 3. The draft plan refers at several points to possible studies of cultural resources within the NCA. A great deal of work has been done on BLM lands in the past--and, in many cases, no reports have been issued. For example, I note that Simon-Fraser University apparently did not submit a report of work they did at the Arroyo Site (see Table 3-26, p. 3-65). Conceivably, there was some justifiable reason for this. However, failure to write up research should be seen for what it is--pot hunting--and should be treated as a criminal offense.

BLM should institute lawsuits against researchers who fail to deliver reports (and to deliver them within the time stipulated in the ARPA permit). Damages should be based on costs required for analysis, research, writing, and publication, using the field records and collections confiscated from the researcher.

RESPONSES TO COMMENT LETTER 5

5-1. Please refer to the response to comment 1-2.

5-2. The BLM agrees that any research conducted in the NCA should result in an acceptable professional report and that in some cases a popular report may also be warranted. Interpretive materials and exhibits developed pursuant to this GMP will help meet some of the concerns expressed in this comment.

Although the BLM has not yet resorted to lawsuits, the agency has an active program to locate field records and collections that have come from public lands. This program also involves ensuring that reports are produced and that proper care is taken of these materials.

5 (concluded)

4. Several sites within the NCA are threatened with the forces of natural deterioration. Table 13-4 and tables within each unit plan recommend monitoring and stabilization for these sites. Two proposed actions are absent from these plans:

First, since "stabilization" of sites has sometimes caused more damage than natural erosion has, it is important that studies be done (in locations the equivalent of the site locations) to determine why erosion is occurring in each instance and to identify the least damaging measures to halt erosion. 5-3

Second, an emergency plan needs to be developed that will allow retrieval of at least some information from sites that may be threatened with imminent destruction when arroyo cutting, deluges, mud slides, etc. threaten to destroy a site within the next few days or weeks.

5. BLM should consider using one or two vandalized sites as exhibit sites. The graphic examples presented by seriously damaged sites might serve to bring home to the public the purposes of historic preservation legislation in ways that no amount of dire warnings and references to possible punishment can convey. 5-4

6. A minor item--a fragment of text is missing in the transition from p. 13-12 to 13-13. 5-5

7. Although division of land surfaces into ecotypes is not new, the concept of presenting the BLU's graphically is brilliant--and was obviously accompanied by equal brilliance in execution.

8. Finally, BLM has done an excellent job of producing a clear, readable presentation of an extremely complex and many-faceted management plan.

I appreciate the opportunity to comment on this document.

Sincerely,

Carol J. Condie

5 - Concluded

5-3. Certainly the erosion assessment described on page 13-13 should address the least damaging measures needed to halt erosion of cultural resource properties. Current BLM procedures allow for retrieval of information from sites that are threatened with imminent destruction. The major practical impediments to such action are a shortage of funds and difficulty mobilizing funding outside the fiscal year budget process. The BLM will continue to seek creative solutions to these problems.

5-4. This is a good suggestion. The BLM will be alert for opportunities to present graphic examples of vandalism to the public.

5-5. Thank you for noting this omission. The missing text should read, "...recognized, that is, areas in which illegal excavation is..."

6

RAMAH NAVAJO CHAPTER
Rt. 2, Box 11, Ramah, New Mexico 87321
(505) 775-3310

Martha Garcia
President

Rolland Ellsworth
Vice President

Clara B. Chicharello
Secretary / Treasurer

Nelson V. Thompson
Council Delegate
Navajo Tribal Council

Cecilia S. Ensrude
Member
Eastern Navajo Land Board

May 22, 1990

Steve Fischer, NCA Manager
El Malpais Information Center
620 E. Santa Fe Avenue
Grants, New Mexico 87020

Dear Mr. Fischer:

I want you to know that we are working on reaching community consesus on the BLM's designation for the Chain of Craters, as well as the BLM's El Malpais draft general management plan. As you can well imagine, the process of consensual decision-making is an extremely complex, time-intensive and drawn-out process, but one that is necessary for this community. Our people's consensual position will form the Ramah Navajo Chapter's response. You may expect our written response by the end of July, 1990, and I trust that you and the BLM Planning Team will give it thoughtful consideration.

In the course of working towards consensus, we may still want to go on the field trip to the Chain of Craters and perhaps have a presentation here on the BLM draft plan. My staff will call you on this. Thank you for arranging the other trips out to the Malpais for our Community History Committee.

Respectfully yours,

RAMAH NAVAJO CHAPTER

Martha H. Garcia
President

xc: Al Albee, BLM Area Manager, Rio Puerco
File/Chrono

5-15

RESPONSES TO COMMENT LETTER 6

In a good faith effort to implement the letter and spirit of Section 507 of the legislation that established El Malpais National Conservation Area (PL 100-225), the BLM has worked closely with the Ramah Navajo community in developing plans for the NCA. BLM staff members have met with chapter members numerous times at Chapter meetings, gone to the field with the Community History Committee to look at specific areas of concern, and coordinated with tribe members on the design for the BLM Ranger Station being constructed on NM 117. Members of the Ramah community participate along with other interested tribes in an informal American Indian Consultation Committee for El Malpais. They have generously provided cultural awareness training that was attended by BLM and NPS employees.

The BLM recognizes that El Malpais is a sacred place for Navajo people and that the Ramah people have a special interest in the NCA, especially because the NCA and the reservation share a 14-mile common boundary. Congress acknowledged this special relationship by ensuring continued access to the NCA and National Monument for traditional cultural and religious purposes, and by instructing the BLM and the NPS to work with affected tribes to develop plans that are sensitive to these needs. The BLM intends to uphold its responsibility and continue to consult with the Ramah Navajo Chapter as the agency implements plans for the NCA.

One of the concerns raised in Comment Letter 6 is continued vehicle access to important places, especially for elderly people. During the coming year, the BLM will work with interested groups, including the Ramah, to work out a policy that would allow limited vehicle access for religious purposes to those areas designated as wilderness. The BLM recommends in the Draft and Final GMPs that the Chain of Craters not be designated as wilderness. This no wilderness recommendation is partially in response to the importance of this area to the Ramah Navajo community and their continued need for unrestricted vehicle access.

Comment Letter 6 raises several points under the protection issue. The El Malpais legislation underscores protection of sacred sites and the need for privacy in conducting religious practices. The BLM will not intentionally disturb such sites. If burials are exposed, the BLM will certainly contact the Ramah Chapter so that the remains can be properly reburied.

As far as specific recreation developments and confining visitors to trails, the BLM will continue to work with the Ramah and other interested tribes as the agency develops site-specific project plans for recreation facilities. The BLM's consultation with the Ramah on the design of the Ranger Station was quite successful and led to a building design that has been heavily influenced by the chapter's presentation to the BLM's design team.

6 (continued)

OPEN LETTER TO THE BUREAU OF LAND MANAGEMENT & NATIONAL PARK SERVICE
ON THE EL MALPAIS NATIONAL MONUMENT & CONSERVATION AREA
FROM THE RAMAH NAVAJO COMMUNITY

August 9, 1990

INTRODUCTION

It was just two years ago that we first heard of the El Malpais National Monument and Conservation Area. At a public meeting at our Chapter House, we were told by the BLM and NPS that Congress had passed a public law mandating the establishment of the El Malpais. We responded with anger that the land upon which we had lived and relied for our physical and spiritual well-being for over two centuries had been taken from us. We felt that we had been ignored because we had not been informed or even consulted about the plans for the Malpais until seven months after the passage of the public law. We felt that we were left out of decisions which had great impact on an area that had once been our eastern boundary and which threatened our way of life. We were pained by the realization that the Malpais would be closed to us and that our ties to this land would be severed forever.

Since that time, we have tried to educate the BLM and NPS about the significance of the Malpais to us, with the hope that our concerns would be considered in the BLM's and NPS' planning. We have attended many BLM and NPS meetings over the last two years to keep informed about the development of the El Malpais and to be an active force in the BLM-NPS planning process. We have examined the issues that are important to us regarding the Malpais and have worked to reach consensus on these. We present these issues here so that the BLM and NPS will understand and honor what we want for the El Malpais and incorporate these concerns into the BLM and NPS General Management Plans.

ISSUES

1. Our sacred relationship to the Malpais

The Malpais is very sacred to us as Ramah Navajo people and to all Navajo people. We see the Malpais as not just a harsh and spectacular landscape of black rock, one of the natural wonders of the world, nor as just a scenic tourist attraction. The sacredness of the Malpais represents the very foundation upon which our lives are built.

The Malpais is one of our holiest places. It is the dried blood of Ye'iitsoh, the Giant Monster who was warring on our people and was killed by the Twin Heroes. These events are a part of our history and relayed in our Creation Story. From these events have come important stories, songs and ceremonies that provide us guidance on how to live our lives productively and with respect.

The Malpais lies to our east, the direction to which we pray each day, and, for this reason, is sacred. Everything that exists in the Malpais--the mountains, rocks, caves, plants, trees and animals--is sacred to us and contributes to our survival. When we go into the Malpais, we go in with a purpose and a reason: to conduct sacred acts that are related to our physical and spiritual well-being. We collect purifying and healing plants, minerals and water for our medicines and ceremonial rituals. We gather many wild foods for our sustenance. Some of these are wild greens, nuts such as

6 - Concluded

While most visitors will confine their stay at El Malpais to the developed recreation facilities, others will want to explore the back country, especially the wilderness areas. The BLM cannot close large areas of public land to the public, except as provided in the El Malpais legislation to ensure American Indian privacy for traditional cultural and religious practices. At the same time, the agency can work with the Ramah to channel back country use away from particularly sensitive areas. While the BLM has an obligation to make El Malpais available to visitors, the agency intends to do so in a manner that reflects the needs of American Indian people who use the land.

The final issue raised in Comment Letter 6 deals with social and economic benefit to the Ramah community. As far as interpretation is concerned, two of the primary objectives agreed on by the BLM and the NPS are "To instill feeling, respect, and love for El Malpais in visitors by interpreting it through the eyes of local American Indians" and "To develop interpretive materials in cooperation with interested local Indian tribes" (refer to Chapter 9 of the Draft GMP).

The BLM has targeted two positions for American Indian hires. While this will admittedly have little impact on an 80 percent unemployment rate, it will demonstrate that El Malpais can create positive economic benefits not only for the communities of Grants and Milan but also for the local Indian tribes.

In summary, the BLM is committed to ensure that Indian people, including the Ramah Navajos, can continue to use El Malpais NCA in ways that will maintain their cultural traditions with as little disruption as possible. The agency will continue to work with the Ramah Navajo community as it has done in the past to accomplish these goals for our mutual benefit.

6 (continued)

acorns and pinons, berries and yucca fruit, just to name a few. We hunt deer, elk, porcupines, rabbits and turkeys in a sacred manner, using songs and prayers, and, after successful hunts, complete our prescribed rituals with offerings of thanks. We collect feathers from eagles and other birds and pollen for our prayers and ceremonies. We obtain materials for our tools, such as those used for grinding corn, weaving and hunting. We also obtain materials for other utilitarian purposes--to make our cradleboards, baskets, soap and natural plant dyes for weaving rugs and baskets and making moccasins. We give offerings and prayers to the Spirit Gods on the top of each mountain. All these activities we conduct in a spiritual manner and in harmony with nature.

We recognize that we must keep good relations with our Mother Earth, to care for her with respect and to protect her sacredness. This is our responsibility and part of our deep spiritual relationship with the land. In return, we receive protection from harm and physical and spiritual sustenance.

We respect the land in the Malpais. We understand our role as her caretakers. We know that if we do not respect the land, we will suffer for it. This reciprocal relationship that we have with the land is a sacred one, passed on from generation to generation.

We carry our religion wherever we go. The plants, animals, medicines that we use exist everywhere in the Malpais. Whenever there is a need to get medicines and to give offerings and prayers, we go into the Malpais. This could be night or day. Unlike our Pueblo neighbors, we may leave no tangible sign of our use or any artifacts in places sacred to us in the Malpais. Artifacts in themselves are not what makes these places sacred, but rather our deep-rooted ties to the land. We do not want to lose these ties. They must be passed on to ensure the physical and spiritual well-being of our people for generations to come.

COMMUNITY CONSENSUS: We have a sacred bond to the Malpais. Many of our sacred stories, ceremonies, foods, medicines and materials for utilitarian purposes originated in the Malpais and were given to us from the beginning for our use. We have taken care of the land in the Malpais for over two centuries, long before the BLM and NPS were here. We want to continue our sacred relationship to the Malpais and to use it as we always have...as the source for our spirituality, the continuation of our way of life and our survival as a people.

2. Vehicular Access

The depth of our spirituality is reflected in how we carry out the sacred activities that define our relationship to the land and our way of life. The spiritual beliefs which make up our religion are practiced in every aspect of our daily lives.

If the Malpais is closed off to us, if we cannot have access to this land like we have always had, we will not be able to conduct the sacred practices which we associate with the Malpais as a holy land. The Malpais will lose its sacred meaning to us. We will lose our spiritual base.

6 (continued)

Our elders are the primary gatekeepers of our culture. Now in their 60s, 70s, 80s, 90s and 100s, they are the ones who will pass on their knowledge of our traditional/spiritual practices to younger generations. An important part of their teachings is to take our young people into the Malpais to pass on what they know--the stories, songs, prayers and ceremonies that make the Malpais a very sacred place. Among these elders are medicinemen, medicinewomen and herbalists who have responsibilities to travel to the Malpais to carry out their ceremonial duties that affect the well-being of us all. These elders, because of their age and health, must have vehicular access into the Malpais in order to conduct ceremonial activities and to teach our young people what their relationship is to this sacred land.

We are an integral part of the Malpais and have been involved with this land for a long time. We have always used the Malpais respectfully as a source for our spirituality. We want to continue our claim to this land. We do not want to be treated as outsiders or strangers to it.

COMMUNITY CONSENSUS: We have the right and the freedom to travel into the Malpais and use it for traditional/spiritual purposes, as we have in the past. We should not be restricted by permits. We need vehicular access into the area so that our elders can conduct ceremonial/traditional sacred activities with other community members and teach younger generations the significance of this land.

We want unlimited and unrestricted access into the Malpais regardless of how specific areas are already designated--monument, conservation or wilderness. We want Congress to designate the Chain of Craters a BLM conservation area so that we can have access to this area as in the past. If the Chain of Craters becomes a BLM wilderness area, we want Congress to add a legislative provision to the authorizing legislation that will allow us vehicular access for traditional purposes.

The Malpais is rightfully ours. We should be able to continue our relationship to this land and maintain this relationship for generations to come.

3. Protection of the Malpais

The Malpais, like other areas sacred to us, can be compared to a church in the Christian religion. The Malpais is a place where respect, harmony and spirituality are the primary values. It is a sacred space where we carry out our sacred activities where we pray for a better future in which we walk in beauty and where we have distinct historical and spiritual roots.

Like a church, the Malpais is a holy place where we communicate privately with the Spirit Gods. If our privacy is violated in any way, if someone is watching us while we are involved in sacred acts, then these acts lose their ability to be effective. We value the privacy that the Malpais now affords us. For this reason, we do

6 (continued)

identify particular places that are sacred to us in the Malpais for fear of losing our privacy when conducting traditional activities. The offerings we make in the Malpais must be left as they are and not disturbed.

The power of our traditional religious practices depends on the land. For example, to make medicines is a sacred act in which everything must be done right. Certain plants must have quiet. Others must be present in certain numbers. Those plants that we gather must be pure and unbroken to be effective. This is why we respect the land and think of her as our life system. We do not take any more of the resources that she offers than we need. We are guided in our actions by the belief that everything is sacred and by our respect for the unwritten laws of nature.

COMMUNITY CONSENSUS: We want the ecosystem of the Malpais to remain as it is now. We do not want outsiders travelling all over our sacred grounds and disrupting the delicate balance of our land. Visitors should be confined to trails. Rangers should keep these outsiders from wandering off established trails and also from getting lost.

We ask that the BLM and NPS manage the entire Malpais as a sacred area, not on just a site-specific basis. The Malpais must be protected so that the efficacy of our traditional practices is not threatened. Offerings and shrines must not be disturbed, but left as they are. Any remains of Navajo settlement--hogans, sweat lodges, burial sites, bones, rock piles, etc.--belong to us and should not be disturbed. The BLM and NPS should contact us if any of these remains are exposed, so plans can be made for reburial.

We do not support the development of the Continental Divide Scenic Trail or the mountain bike route through the Chain of Craters. (Please note that this mountain bike route is not to be confused with the one proposed along NM Highway 53 from Grants to Cinder Hill, for which the Ramah Navajo Chapter has granted approval.) Also, we do not support the development of campgrounds by mountains or of hiking trails to the tops of mountains (e.g., in the Chain of Craters, Hole in the Wall) or rim trails (e.g., South Big Narrows to La Ventana Natural Arch). Just as these types of development are not appropriate for a church, they are not appropriate for one of our holiest places.

4. Social and Economic Benefit

Development plans for the Malpais must not only benefit the City of Grants, but also the Indian communities for whom the Malpais is sacred. These plans must analyze whether they provide positive and productive economic benefit, while, at the same time, support the social and cultural cohesiveness of our communities. We want jobs for our people. We must consider, however, the potential negative impacts of tourist

6 (continued)

development on our people, our culture and our spirituality. We cannot think of only profits without looking at their long-term impact on the social, cultural and economic fabric of our community.

We want as one principle of development in the Malpais to be the recognition of our people, our culture, our history and our sacred relationship to the Malpais. All development should strengthen our culture, not negate or disrupt it. Our unique history and struggles for self-determination should be part of the story of the area. Our stories, arts and crafts, our ways of dressing and our traditional ways should not be copied by outsiders. We want our way of life and our culture presented authentically...by our own people who are knowledgeable in traditional life. If done by outsiders, this will only invite harm to them and to our people.

COMMUNITY CONSENSUS: The NPS and BLM should convey the respect we feel for the Malpais to visitors. Our history and culture must be portrayed accurately and by our own people. Our history, way of life and struggles for self-determination should appear in displays at the Malpais visitors' centers and ranger stations, in books, in media and in interpretive materials produced about the Malpais. We want to be represented equally in displays, publications and media so that the public will understand our sacred relationship to the Malpais.

We have the knowledge and talent to assist in the preparation and publication of interpretive materials about the Malpais. We want to have opportunities to review these materials, from conception to completion. We want our comments respected and responded to by the BLM and NPS. Oftentimes, we ask our elders to look at these materials and consider whether media projects will benefit our community. They do this work on a voluntary basis, and their time and efforts should be acknowledged.

Our artists and craftspeople, as well as those from the other Indian communities surrounding the Malpais, should have opportunities to sell their work at NPS-BLM visitors' centers. They should also have opportunities to demonstrate and explain the philosophies and processes that are involved in creating their work to the public.

If a sales area cannot be set up in the visitors' centers, we ask that a facility where we can sell our native foods and our arts and crafts and where we can tell our stories to the public be constructed next to the visitors' centers. Perhaps we could also do these things in a rest area or picnic area set aside in our name.

In addition to the development cited in #3 above, we do not want commercial or residential development in the Malpais. Any such development will change the ecosystem of the Malpais and disturb the balance that now exists.

6 (concluded)

In general, we want development in the Malpais to contribute positively to our community. With our people experiencing 80% unemployment, it is imperative that our community benefits directly from any development that takes place in the Malpais. We do not want development that disrupts, puts down or undermines our way of life. We want to continue working with the BLM and NPS on appropriate development plans. We want our children involved in these plans.

IN CONCLUSION

Once a part of our land base, the Malpais remains a very special place to us. We understand and respect the Malpais as an extremely sacred and holy area. This knowledge has been passed down to us by our parents and grandparents. In the same way, we want our children, our grandchildren and future generations to come to have a strong foundation in our traditional culture and to learn to respect this way of life in which sacred places, such as the Malpais, are central.

It is for our children and grandchildren and for the future of our community that we have tried to work with and educate the BLM and NPS about our concerns--with Ramah Navajo Chapter Resolution No. 0189119 (January 13, 1990), with community meetings and with this letter of response. We want the BLM and NPS to put our concerns into the General Management Plans and develop policies that honor our concerns. We want to continue our relationship with the NPS and BLM. The Malpais is too important to us to do otherwise. The Malpais is our spiritual link to our future, to our survival and continuity as a strong and spiritual people.

Submitted by: Martha H. Garcia

Martha H. Garcia, Ramah Navajo
Chapter President

Katie C. Henio

Katie C. Henio, Ramah Navajo
Community History Committee

Sam Martinez

Sam Martinez, Ramah Navajo
Community History Committee

Tommy Pino

Tommy Pino, Ramah Navajo Community History Committee

cc: New Mexico Congressional Delegation

7

New Mexico

WILDERNESS STUDY COMMITTEE

John Wright
NMWSC Chairperson
7311 Coors S.W. #7
Alb., N.M. 87105

June 13, 1990

Bureau of Land Management
Al Abee, Area Manager
Rio Puerco Resource Area
435 Montano Road NE
Albuquerque, New Mexico

Dear Mr. Abee,

On behalf of the 300 members of the New Mexico Wilderness Study Committee I would like to thank you for this opportunity to comment on the El Malpais General Management Plan. The committee would like to thank the BLM for the work it has put into the plan and the effort it has made to involve and inform the public.

The New Mexico Wilderness Study Committee supports wilderness status for the Chain of Craters Wilderness Study Area. Wilderness status would maintain the natural character of the conservation area and help preserve the wildlife populations and other natural resources in the entire conservation area.

The New Mexico Wilderness Study Committee is concerned that the management emphasis should be on preserving the natural environment in the conservation area and not on developing recreation or visitor use facilities. Specifically the committee is concerned with the proposal to develop the Chain of Craters WSA as a mountain bike area; also, that there may be excessive development of visitor facilities along the 117 corridor.

7-1 Plans to develop the Chain of Craters as a mountain bike recreation area would be inappropriate for several reasons. The terrain is not suitable for a quality mountain bike experience. Additionally, there are many other mountain bike trails available and there has been no demonstrated need for such facilities in this area.

RESPONSES TO COMMENT LETTER 7

7-1. Responses from some mountain bike users have indicated that the Chain of Craters would not be appropriate for that use, while others disagree. The Draft GMP does not propose any development or trail designation specifically for mountain bike use in the unit. Approximately 35 miles of inventoried two-track ways exist within the unit; of this total, several miles could be limited to mountain biking if a conflict occurs between vehicle users and mountain bike users.

You are correct in stating that other mountain bike trails are available in the region. At this time, no mountain bike trails will be specifically designated for exclusive mountain bike use in the NCA, although existing ways outside wilderness can be used for this purpose.

The committee also feels that there could have been better coordination between the National Park Service and the BLM regarding the placement of visitor facilities along the 117 corridor. Excessive facilities would detract from the natural character of the area and could provide visual and noise interference in the Cebolla Wilderness and the National Monument. Specifically the committee feels that the amount of development in the La Ventanna, The Narrows and the South Big Narrows should be reduced in terms of paved parking area. 7-2

The committee feels that the BLM has done a good job in working with the Native American groups in incorporating their issues in the General Management Plan. The committee recognizes that this area may provide a standard for working with these groups in other public lands. However, the committee feels that the restrictions for vehicular access that are written down for the Cebolla Wilderness should also be written down for the West Malpais and the Chain of Craters. 7-3

Regarding fire control the committee feels that natural controls should prevail and minimal human impact should be evident in fire suppression. 7-4

Generally speaking, the committee would like to emphasize the importance of preserving the natural primitive character of the area within the conservation area. The committee feels that in some cases the land should be managed to regain some of the natural conditions. For example, permanent cattle exclusions on both the east and west side should be built to allow the land to return to its natural state. The natural state would be determined through your collected data. 7-5

Thank you for your consideration of these comments.

Sincerely,

John Wright

7 - Concluded

7-2. In the Draft GMP, four kiosk locations were identified for construction at NCA entrance points. After further review and coordination with the National Park Service, the BLM has determined that only two kiosks are needed.

The highest priority for kiosk construction is in the southern part of the NCA, at the junction of NM 117 with CR 42 (refer to Map B). This location will allow orientation of visitors coming into the NCA from the south. The second priority is the kiosk in the area of Ojo del Gallo Spring (proposed for wildlife viewing) along NM 53, on the north side of the NCA.

The BLM no longer plans to develop kiosks on the north end of the NCA along NM 117 and on the southwest side along NM 53. Also, the NPS is now considering sharing the BLM's South Narrows parking area as the trailhead for their proposal trail along the Narrows, consolidating development in this area.

7-3. Restrictions on vehicular access apply to both the Cebolla and the West Malpais wilderness units. Vehicles are restricted to existing ways and trails in the Chain of Craters Unit, in conformance with the BLM's Interim Management Policy and Guidelines for Lands Under Wilderness Review.

7-4. The fire management plan being developed for the NCA is designed to protect private property and historic sites, but will allow fire to fill its natural role in ecosystems as much as possible.

7-5. The El Malpais legislation provides for the continuation of livestock grazing in the NCA where it already exists. As they are now, livestock exclosures will be maintained to monitor vegetative conditions in the NCA, and will remain as areas that are not open to grazing on any schedule. Construction and monitoring of additional exclosures will depend on the availability of staff and funding.

8

Mr. Al Genetti
BLM, Albuquerque

June 10, '90

We support wilderness designation for the Chain of Craters WSA in the El Malpais National Conservation Area. It not only meets all wilderness criteria but would be a unique addition to the wilderness system offering the only group of craters along the Continental Divide. Sincerely,

Arnold Kesselle
Carolyn Kesselle

CAROLYN KESSELLE
MR ARNOLD E KESSELLE
ROUTE 3 BOX 106F
SANTA FE NM 87505

2724 Veranda Rd NW
Albuquerque, NM 87107
June 15, 1990

Al Abee, Area Manager
Rio Puerco Resource Area
Bureau of Land Management
Albuquerque, New Mexico

Hello Al Abee:

The following are my comments on the El Malpais NCA General Management Plan [(Draft)]:

For the most part this is a well considered and well done, comprehensive plan. However, for a member of the public with normal time constraints, it is somewhat overwhelming to comprehensively critique. I will skeletally make suggestions etc. as I wade through it from front to back, touching upon parts where my personal experience and interests especially apply.

Chapt. 1, Sec. 5
The BLM concept has great potential to examine the land and the biology upon it as never before, offering new insights and perspectives. This concept should be utilized to the utmost and coördinated with other approaches to study and manage the NCA.

Chapt 2, Sec. 1
It is stated: "The legislative emphasis for the NCA is on conservation." The same paragraph mentions the "Key initiatives" of "Recreation 200", "Adventures in the Past", and "A strong emphasis is placed on interpretation and educational services—". I suggest that the BLM bear in mind the

legislative emphasis on conservation. The other initiatives should be secondary to conservation. The NPS role in the El Malpais area accents developmental initiatives. The BLM's emphasis and strong suit should be in conservation and undeveloped use of their part of the El Malpais area.

Chapt. 2, Sec. 4
The plan to expand the NCA into the five contiguous areas is a great idea!

Chapt. 2, Sec. 7, Table 2-4
Keep constructed facilities to a minimum. Coördinate with the State Highway Dept. to minimize realignment of NM 117. Acquiring private inholdings not only in the Cebolla Wilderness but throughout the NCA is essential for future comprehensive management. Monitoring is necessary, and the more, the better. Keeping monitoring priorities in the proper order. Erosion control is a positive plan where it will actually work and is not too late.

Chapt. 4
For other of my comments on grazing issues see my letter to you on the RMP for the Cebolla and West Malpais Wildernesses.

p. 4-7
"The nonconforming but acceptable use of established livestock grazing will continue." "Nonconforming" is the key

5-23

9 (continued)

3

ward and future plans and actions should Keep this in mind.

p. 4-8
"Minimize the establishment of improvements, secondary trails." This should also apply to many ways and primary trails that are not now needed, not only in the Cebolla, but in the West Malpais. For instance, the trails within the Big Hole-in-the-Wall are not necessary. They civilize the wilderness unnecessarily. The terrain is easy walking everywhere and the relatively few hikers should be allowed to disperse and not cause a wilderness hiker trend.

9-1

p. 4-18
"Range will be managed to allow grazing to continue while protecting wilderness values—." My underlines are to point out that grazing and protecting wilderness values are mutually exclusive.

9-2

p. 4-22
The "I" category applied here is a vast understatement. Besides, the soils here are obviously highly erodable. Grazing should be managed accordingly, if in fact the allottee can't be bought out.

9-3

p. 4-25
Closely monitor grazing impacts and act accordingly.

5-24

RESPONSES TO COMMENT LETTER 9

9-1. Establishing wilderness trails is one method of minimizing the development of secondary trails. The wilderness trail proposed in the Draft GMP for the Cebolla Wilderness Unit is located at an easy access point where use is expected to increase and the development of secondary trails is likely.

The South Narrows provides easy access to the northern portion of the Cebolla Wilderness Unit. The BLM proposes to construct a trailhead at this location to promote wilderness ethics and gather visitor use data (refer to the Draft GMP, page 3-24). The Rim Trail, which begins at the trailhead, will be marked by sandstone cairns to direct wilderness users away from areas important to American Indians. Physically marking the trail will be necessary only as use increases; a treadway will not develop because much of the trail will cross over slickrock sandstone.

The trail identified in the West Malpais Wilderness Unit is an existing system of vehicular ways that originate at the end of a cherry-stemmed road, where a trailhead is proposed (refer to the Draft GMP, page 3-36). The trailhead will be used to promote wilderness ethics and gather visitor use data (Draft GMP, page 3-37). Rather than identify the trail, the BLM will monitor use of the area and allow natural revegation of the old ways. (Refer to Chapter 3 in this Final GMP for a discussion of the Naturalness Initiative.)

9-2. The El Malpais legislation states in Section 402(b), "Within the wilderness areas designated by this Act, the grazing of livestock, where established prior to the enactment of this Act, shall be permitted to continue subject to such reasonable regulations, policies, and practices as the Secretary deems necessary, as long as such regulations, policies, and practices fully conform with and implement the intent of Congress regarding grazing in such areas as such intent is expressed in the Wilderness Act and section 108 of Public Law 96-560 (16 U.S.C. 1133 note)." The Wilderness Act permits livestock grazing to continue in wilderness areas.

9-3. The BLM's selective management categories provide a system for establishing priorities to implement changes in grazing management. These priorities are based on the need for improved allotment management and for resolution of identified resource conflicts, the potential for improved ecological condition, and the cost-effectiveness of implementing changes.

9-3 cont'd
P. 4-27
"Natural ecological processes will be allowed to occur in the Wilderness without human influence as much as possible." Yet cattle grazing is allowed to overwhelm the natural ecological processes.

P. 4-38
"Human impacts in the unit are rare —." "Resource protection prescriptions are designed to prevent any further impacts." "Human interference would be minimized —." More of the BLM "blind spot" with regard to the mass damage done by overgrazing by stock!
"— continuation of grazing while protecting wilderness values, —" Notice the priority sequence!

5-25
Chapt. 5
My general comments for the Cebolla apply to the West Malpais.

Chapt. 6 6-18
9-4
"Young conifers are growing into the meadows —." "If habitat manipulation is restricted —." Instead of cutting trees, how about restricting (or concluding) grazing in these areas. Overgrazing has allowed the conifers to march into the meadows!

6-19
9-5
"— over half the NCA would exclude any form of mechanized or motorized transport within a primitive

9 - Continued

Selective management categories can be changed as additional resource data becomes available. A change in category for an allotment will result in management changes appropriate to the new category, consistent with the objectives of the approved BLM Resource Management Plan for the area in which the allotment lies.

"I" category allotments are managed intensively to improve unsatisfactory ecological conditions and resolve resource conflicts. Vegetative monitoring studies that include the collection of precipitation, utilization, and actual use data are conducted at least annually on "I" category allotments. These studies enable managers to evaluate changes in grazing management and determine livestock grazing capacities. When desired plant communities are selected for the NCA, vegetative monitoring will be modified to reflect the goal of achieving these communities.

9-4. A great deal of literature exists concerning the encroachment of trees into meadows. The causes are probably a combination of human-generated activities and the natural evolutionary process of reforestation and deforestation of meadows in areas where woodlands and grasslands meet. Management objectives for the Chain of Craters Wilderness Study Unit (WSU) include maintenance of a patchwork of woodland and meadow at the interface between those two habitats. If allotments within Chain of Craters WSU boundaries are determined to have vegetative problems related to grazing management, changes will be implemented. (Refer to the response to comment 9-3 above.)

9-5. The figures are presented to identify how much land in the NCA will be excluded from any mechanized or motorized recreation if the Chain of Craters WSU is designated as wilderness. Part of the rationale for proposing non-wilderness is to maintain a diversity of recreational opportunities within the NCA.

9 (continued)

5

9-5 cont'd

setting, including mountain biking." Is this the rationale for proposing non-wilderness designation—percentages of land use? Is the BLM thinking of diversifying uses of the NCA? Shouldn't it be deciding the best use of each unit intrinsically, not talking percentages for feet and percentages for wheels? Is the BLM manufacturing recreational opportunities or thinking of the best stewardship of the land? Doesn't the NPS provide for plenty of recreation, and nearby? The "Chain of Craters" is a place to complement and coördinate with the other agency, not compete with it. Mountain bikes can be accomodated in the National Monument's "East Rendija" area—complete with their proposed campground. The "Continental

9-6 Divide" C.U. could be used for mountain biking in combination with the NPS plans for the "East Rendija" area.

6-19

"Restricted use of vehicles in the unit could impact the permittee's management style and costs." Is the BLM putting the public land first or the convenience and cost to the permittee first?

6-20

"This provision would allow limited vehicular access

5-26

9 - Continued

9-6. Several private land parcels in the Continental Divide subunit have recently been acquired by the BLM, but the subunit still contains private land. By designating the subunit for recreational use, the BLM would direct visitors into an area where conflicts between private landowners and public land users could develop. The BLM may acquire more of this land in the future and to some degree eliminate the possibility this type of conflict.

Although mountain bike use is becoming increasingly popular, other mountain bike trails are available in the region of the NCA. At this time, no trails will be specifically designated for exclusive mountain bike use in the NCA, although existing ways outside wilderness can be used for this purpose.

Some mountain bike users feel that the soils and terrain in the Chain of Craters make it unsuitable for this use, while others disagree. The Continental Divide subunit is largely comprised of the same BLUs as the Chain of Craters (refer to Map A, Draft GMP, and Map C in this Final GMP) and can be expected to provide the same type of conditions for mountain bikes.

Navajo traditional, cultural, and religious uses." My

9 (continued)

6

underlines emphasize what a disastrous precedent this would be!

"— impacts to wilderness values would be limited because increased mechanized access would occur on the designated mountain bike trails." It is highly naive to assume that the wheels will stay on the
9-7 designated trails! Some bikers no doubt will be tempted to leave the trail and climb the pristine (and fragile) cerros on their bikes. Where wheel tracks lead, motorized wheels will follow.

5-27

Chapts. 7 + 8

Why were the Monitoring and Implementation Plans deferred to the Final GMP? Why shouldn't the public be able to review at least the philosophy and
9-8 priorities of these plans? May we have some sort of written indication of what they will consist of so that we are able to make suggestions? They should eventually be specific and detailed so that they may be adhered to by the managers and staff.

Chapt: 9

The philosophy and "General Goals" of the Interpretation and Public Education plan are commendable. The tac here again I believe is to Keep to a minimum developed facilities, trails, etc.

9 - Concluded

9-7. Because the Chain of Craters WSU contains 35 miles of ways and trails that can be used by wheeled vehicles, monitoring and patrol will be necessary to control access and protect natural resources. Implementing the Public Outreach initiative (refer to Chapter 3) can mitigate some of the impacts created by recreational use.

9-8. The discussions of monitoring (Chapter 2) and implementation (Chapter 3) in this Final GMP reflect the public input received on the management objectives for the NCA displayed in the Draft GMP. The public will have an opportunity to review both chapters after they are published. Comments on the Final GMP will be accepted during a 30-day period following its release.

Chapt. 10
I am pleased to read that the only major planned facility is the Ranger Station. Again, the key to the NCA management I feel should be conservation and not development. The stated legislative emphasis for stewardship of the El Malpais NCA says "conservation".

Chapts. 11, 12, & 13
The last two sentences apply as well to the Wildlife, Natural, and Cultural Resource Plans.

I plan to continue to work with the BLM on the management of the El Malpais NCA and on occasion consult with you personally on this.

Sincerely,

Jan A Cummings

Jan A Cummings

copies: various

5-28

10

P.O. Box 712
Placitas, NM 87043
17 June 1990

Al Abee, Area Manager
Rio Puerco Resource Area
Bureau of Land Management
435 Montano N.E.
Albuquerque, NM 87107

Dear Mr. Abee:

Thank you for the opportunity to review the Draft General Management Plan (DGMP) for El Malpais National Conservation Area. Your staff is to be commended. Overall the DGMP is informative, well-conceived and consistent with the accepted concepts of conservation while still providing for a diversity of opportunities.

5-29

My comments below cover some of the issues about which I am most interested. Just as the GMP is a living document and will change to reflect new information, I shall continue to participate actively in all aspects of El Malpais National Conservation Area and will provide additional comments as I feel necessary.

My comments are presented in the order in which they appear in the DGMP. The comments include both support for certain issues and questions with regard to or disagreements with others. If I do not comment on a given issue, it should not be taken to mean that I have no interest; only that I have limited time.

Application of Biophysical Land Units (BLUs) -- The most unique aspect of the DGMP is the application of BLUs. This approach provides a scientific method of grounding management in a way never previously attempted. The implications are profound. I hope this approach represents a new direction for the agency; that we will see the same approach taken and rigorously followed on all of our public lands.

Proposed Expansion of NCA Boundary -- I support all five of the proposed expansions to the NCA. The Techado Mesa area was in our original proposal for the NCA, but apparently was inadvertently dropped. The text on Page 2-4 refers to 18,000 acres. The map, however, indicates only about 19 sections (12,000 acres). Our proposal included all seven of the sections along the south to provide a boundary more consistent with topography. It is my understanding that Section 20, T4N, R9W is also public land. The other five sections are private but contain no developments.

10-1

RESPONSES TO COMMENT LETTER 10

10-1. Thank you for this correction. The text on page 2-4 should refer to approximately 11,520 acres of public land. The acreage recommended for addition to the Conservation Unit includes two sections of private land, bringing the total acreage to 12,800. The private land you mention is part of the Red Lake Ranch, which now belongs to the Acoma Tribe and is not recommended for NCA inclusion. However, Section 20, T4N, R9W is public land and could be included. Map 2-1 has been revised to include this section (refer to Chapter 6 of this Final GMP for the map reprint).

10 (continued)

Continental Divide National Scenic Trail (CDNST) -- I support the alternate trail route proposed in the DGMP instead of the route identified in the Rio Puerco RMP. The western route provides for more variety, less resource conflict and less travel along existing roads.

Mertz Ranch/Field Learning Center -- I feel that location of a Field Learning Center at the Mertz Ranch is an excellent idea. The Field Learning Center would provide a focus for realizing the full range of educational opportunities offered by El Malpais National Conservation Area. It would support the application of the BLU and Limits of Acceptable Change concepts. It could help establish the agency as an international leader in public land management. Location of the Center at the Mertz Ranch would provide an agency presence in a remote area that will otherwise remain subject to abuse unless access is severely limited.

10-2

Wildlife Habitat -- The statement "water developed primarily for livestock also benefits wildlife" (Page 3-41) is fundamentally not true. Most land-based wildlife species require much less water and can travel several times as far for water as domestic livestock. Livestock waters simply extend the area in which livestock competes with wildlife for forage, shelter and natural waters. Elimination of all livestock and all of the unnatural waters on which it depends could only enhance wildlife in the long-term. Not only would forage increase, but the natural waters (that have been destroyed by continuing overgrazing and the associated erosion and loss of the ability of the land to retain water) would reappear. Because of their locations, livestock waters also aggravate wildlife destruction by poaching as well as by unintentional interference with humans.

5-30

10-3

Until domestic livestock are removed from the NCA, I support additional wildlife waters only in fenced areas from which livestock are permanently excluded. In addition to supplying water for wildlife, these areas will provide a wealth of data on land not grazed by domestic livestock.

Range Management -- First, an observation: Only four of the twelve allotments in the NCA are in the "M" category. Three of these allotments are small, isolated units that contribute little to the overall picture. The other "M" allotment, Cerritos de Jaspe, is mostly private land.

Given that domestic livestock has had and continues to have such a negative impact on the natural resources of El Malpais National Conservation Area, the section on range management is grossly lacking in specific actions to improve the admitted bad situation. I expect to see much broader coverage of this issue in the monitoring and implementation chapters. Further comments will be provided when Chapters 7 and 8 are available.

10 - Continued

10-2. The BLM hopes to acquire this private facility in cooperation with a conservation organization. However, the feasibility or length of time to accomplish this acquisition is not known. This part of the NCA is currently monitored and patrolled by BLM personnel from Grants and Albuquerque. Implementation of the GMP will call for continued monitoring of this remote area.

10-3. The BLM supports New Mexico Department of Game and Fish (NMDG&F) operation plans where they exist. The NMDG&F operation plan calls for wildlife waters to be developed approximately 2 miles apart for antelope and deer. The BLM considers this recommendation as part of its efforts to cooperate with the NMDG&F.

Livestock waters are included as part of the wildlife supply network in the NCA. Waters developed for wildlife are usually built inside a fenced exclosure to protect them from domestic livestock intrusion and damage. The fencing allows deer, antelope, and other wildlife species access to the water.

Cebolla Wilderness Unit Management Plan -- Overall, the management plan is excellent. The one exception is the section on Range Management. Specific comments on range management (or lack thereof, as the case seems to be) have been provided above and in my comments on the Range Improvement (sic) Management Plan.

10-4 West Malpais Wilderness Unit Management Plan -- Overall, the management plan for this unit is also excellent. One exception is, surprise, the section on Range Management. Another exception, is the proposed trail into Big Hole-In-The-Wall. The topographic features of the area do not warrant such a trail. The area is ideally suited to dispersed and unconfined recreation. A trail would concentrate visitor use and distract from the wilderness experience.

5-31 Chain of Craters WAR/EA -- "The Chain of Craters Unit contains approximately 18,300 acres of publicly owned surface estate administrated by the Bureau of Land Management." Page 6-1. "The unit as a whole appears natural and is considered to exhibit the wilderness characteristic of naturalness." Page 6-17. "Overall, the Chain of Craters Unit offers an outstanding opportunity for solitude." Page 6-17. "The unit provides an outstanding opportunity for primitive recreation." Page 6-17.

Given that the assessment by BLM is so conclusive that the Chain of Craters Unit meets the criteria for wilderness, I was surprised that the proposed action was "No Wilderness". I was flabbergasted when I discovered that the excuse was a proposed mountain bike trail. I have been actively riding mountain bikes in New Mexico for a number of years. I have never had the Chain of Craters WSA suggested to me as a viable place to ride. On Memorial Day, several friends and I took our mountain bikes there to see for ourselves if the proposed action made any sense.

10-5 The Chain of Craters WSA is an essentially flat area except for the dozen or so cinder cones that make up the "chain of craters". The proposed mountain bike trails follow existing two-tracks in the flats. The soil groupings in the flats range from sandy loams to clays. Whether wet or dry, these types of soils are difficult to negotiate on a mountain bike. The cinder cones consist of small, loose cinders at the angle of repose. To attempt to climb any one of them on a mountain bike would be destructive and foolish. Vegetation in the flats is pinyon and juniper of a height perfect for obstruction of view without providing shade along the two-tracks except for early or late in the day when shade is not so vital. Who came up with the idea to make Chain of Craters a mountain bike park? My question is not rhetorical; I suspect that the answer will shed some light on this extremely important issue.

As an area for primitive recreation (i.e., hiking), Chain of Craters is unique and fabulous. Furthermore, it is amazingly accessible. Cerro Chato, in the heart of the area and the tallest of the cones, is less than two miles from County Road 42. Cerro Piedrita, in the northern portion of the area, is less than three miles from CR 42. Cerro Colorado, in the southern portion of the area, is less than two miles from CR 42. None of these approaches crosses private land.

10 - Concluded

10-4. Please refer to the response to comment 9-1.

10-5. Please refer to the response to comment 7-1.

On Page 6-8, it is stated that if Chain of Craters is designated wilderness, "less than half of the NCA would be available for non-wilderness type recreation." Please refer to Map 4-3 on Page 4-14 to put this statement in proper perspective.

Chain of Craters is quite unique compared to either West Malpais Wilderness or Cebolla Wilderness. "The Chain of Craters Wilderness Study Unit contains exceptional scenic values....The views from the peaks of the cinder cones are of volcanic fields, sandstone bluffs rising above the flows, and broad panoramas of open forest with Mount Taylor in the background. The open forests create variety in form and texture in the foreground." Page 6-12. I agree.

Balance of DGMP -- Following your lead, I shall defer the rest of my comments until I have had an opportunity to review the Monitoring Plan, the Implementation Plan and the Fire Plan.

Again, I thank you for your consideration and for a plan that, in general, is excellent. I look forward to seeing the rest of the document and to implementation of a program, long overdue, to protect El Malpais, a special part of the Land of Enchantment.

5 - 3 2

Sincerely,

Jim D. Fish

Jim D. Fish
Founder
Public Lands Action Network

copies:

Representative Richardson
Bob Dale
Larry Woodard
Johanna Wald
Sam Hitt
Tom Nelson
Various others

11

6-15-90

Bureau of Land Management
Mr. Al Abee, Area Manager
Rio Puerco Resource Area

Dear Mr. Abee:

I am an avid mountain biker. I tour extensively and race competitively in New Mexico, Colorado and Utah. I won the Durango Iron Horse and placed first at the Cedro Peak race last week end. I work at Two Wheel Drive as shop manager. I DO bikes!

5-33 11-1 As much as I would love more dirt bike areas, the "Chain of Craters" area should go into the wilderness system. It is not suitable for biking as the dirt is powder when dry (hard to peddle!) and is slime when wet (impossible to peddle!). The area is piñon and juniper, mainly flat, with no views. The cinder cones are too steep and cutting for even climbing on foot.

Please consider other areas for us dirt bike folk and join the "Chain of Craters" in with the "West Malpais wilderness".

Sincerely,

Eric Ginn

Eric Ginn
c/o Two Wheel Drive
1706 Central SE
Alb. NM 87106

RESPONSES TO COMMENT LETTER 11

11-1. Thank you for your comment. Please refer to the response to comment 7-1.

12

3005 Calle Quieta
Santa Fe, NM 87505
June 19, 1990

Al Abeo, Area Manager
Rio Puerco Resource Area
Bureau of Land Management
435 Montano NE
Albuquerque, NM 87107

Dear Mr. Abeo,

I would like to comment on the Chain of Craters Wilderness Suitability Study for which wilderness hearings were held on April 18 and 19, 1990 when I was out of state and request that my comments be added to the hearing record if at all possible.

I support wilderness designation for the Chain of Craters. I could take a couple of pages and rave about the natural beauty of the land and the wonderful feeling of being in harmony with nature because of the expansiveness and solitude felt while in the area, as I did shortly after I first visited the area some fifteen years ago, but I won't. It's already done in a very cold, brief and scientific manner in the document. The area meets the wilderness criteria. BLM even states this in its Wilderness Analysis Report/Environmental Assessment (WAR/EA) although the agency is quick to say it only minimally meets the criteria, but it does meet the wilderness criteria. The area should be managed in a way that will protect and preserve it natural characteristics. In my way of thinking that can best be accomplished by designating it wilderness.

12-1 I find it most interesting that BLM places a heavy emphasis on recreational vehicular use without apparent regard for its impact on the land and the wildlife found in the area. One of the reasons given that the Chain of Craters should not be wilderness is that then less than half the national conservation area (NCA) would be available for motorized, non-wilderness recreational opportunities. I really don't see that this is a problem. In this age of healthful living including sufficient physical exercise, people should be walking, not riding in or on vehicles.

I thought that was one of the purposes of creating wilderness was to have solitude and quiet, for man to be in harmony with nature. One should not be disrupted by things such as the noise from motorized trail bikes and other vehicles, or have to share the trails with them or mountain bikes. And as the WAR/EA states "The unit has outstanding opportunity for primitive recreation." So why spoil it with outside noise or by allowing the use of mountain bikes and other vehicles, that also tend to destroy the habitat, in Chain of Craters.

RESPONSES TO COMMENT LETTER 12

12-1. As the result of the wilderness study process, 75 percent of the Chain of Craters is classified as having semi-primitive non-motorized recreation opportunities, 20 percent semi-primitive motorized, and 5 percent roaded natural (refer to the Draft Rio Puerco Resource Management Plan, page 6-8). Vehicular traffic within NCA boundaries is restricted to existing roadways or trails outside wilderness. If surveys and monitoring identify areas where off-road disturbance is occurring, management action will be taken to correct the situation. Refer also to the response to comment 9-5.

12 (continued)

Also I would like to know why the ACA must be open to motorized recreational use, if it is not used for that purpose at this time? Is BLM managing the land and habitat for its most beneficial purposes or is BLM simply providing another means of attracting more visitors to an area? I thought BLM was in the land managing business, not the tourist attraction business, and especially at the expense of the land and the life it supports.

I also noticed that according to BLM, everyone suffers if the area is designated wilderness. The Native Americans and the ranchers will no longer have free use of their trucks and the wildlife will leave, actually I think the WAR/EA said may leave. But I noticed in the consultation and coordination section of the document there was no mention that BLM had worked with either US Fish and Wildlife Service or the NM Department of Game and Fish to explore the apparently adverse impacts wilderness designation would have on the wildlife in the area. Nor were the impacts of motorized recreational uses on both wildlife and domestic livestock considered in the analysis. 12-2

Judging from the rationale in the document, I would guess that BLM just made up its mind to say no wilderness, and then tried to justify its biases without substantial evidence. In fact, may be even contradictory evidence, when BLM says the unit has outstanding opportunity for primitive recreation, but should also be subjected to the impacts of motorized, non-wilderness recreation in the adjacent areas and in Chain of Craters as well, if it is not designated wilderness. Obviously we're back to the new and improved way to manage our lands, just like Disneyland, pack in all the people we can, without regard to the impacts on the land and habitat or the wildlife and livestock, and that's my bias.

Thank you for the opportunity to express my opinions.

Sincerely yours,

Judith S. Bishop

5-35

12 - Continued

12-2. The Albuquerque District wildlife habitat management program is directed by various memoranda of understanding, cooperative agreements, and contributed fund agreements with other federal agencies, state agencies, and national and local wildlife organizations. Primary direction is provided by the Federal Land Policy and Management Act of 1976, the Endangered Species Act of 1973, and the Public Rangelands Improvement Act of 1978, as amended. A final legislative Environmental Impact Statement (EIS) is being prepared for the Chain of Craters. Based on public and agency comments, the environmental consequences section of the EIS will be updated.

12 (continued)

3305 Calle Quieto
Santa Fe, NM 87505
June 25, 1990

Al Abeyta, Area Manager
Rio Puerco Resource Area
Bureau of Land Management
435 Montano Road NE
Albuquerque, NM 87107

Dear Mr. Abeyta:

I would like to offer my comments on the Draft El Malpais National Conservation Area General Management Plan and Environmental Assessment (GMP/EA) released in April, 1990 by the Bureau of Land Management (BLM). After having talked with you on Monday, June 18, 1990 I know these comments are late since June 18 was the deadline for comments. However, the deadline date is not included in the Draft GMP/EA, and this is one of contributing factors to the confusion on my part about when the comments were due, and hence the phone call on Monday. You had indicated that a letter do go out with the document giving the deadline for comments. However, I have still not been able to find any letter(s) giving the deadline date for comments as I looked through my correspondance from BLM this past week. I hope my comments are not too late for consideration in the analysis for your proposed management for the area.

I was favorably impressed with the biophysical land unit (BLU) approach to identifying management units. This is certainly better than the very broad descriptions used in the past in trying to find similar land types. The staff has done an excellent job in using, I assume, both BLM's LIS and NASA's Landsat information to come up the biophysical units that correspond to the actual land types. I liked the tables summarizing the BLUs and the different management issues. I trust this approach will continue to be used in the future.

I was also encouraged with the number of educational exhibits in the plan. Although my preference would be not to encourage vastly increased visitor use, I thought the Interpretation and Public Education Plan was well done. I did, however, wonder about the number of antelope visitors would actually see in Wildlife Viewing area, CR42 (pg 9-5) with all the motorized and non-motorized vehicular use you are proposing for the National Conservation Area (NCA).

Overall, I thought the GMP was biased toward recreational uses. In analyzing the proposed actions with related

12-3

12-4

5-39

12 - Continued

12-3. **The wildlife viewing area along CR 42 is conceptualized as providing visitors with a chance to look at and understand a high desert ecotype. The action of constructing the pullout and interpretive panel carries a Priority III for implementation (refer to the Draft GMP, page 2-9); it will require additional steps to allow for increases in antelope populations before any construction begins. The probability of seeing antelope along CR 42 is expected to increase over time.**

12 (continued)

Management issues given in Table 2-4, pp 2-9 - 2-10, I saw [illegible] items. In counting the proposed actions I found that you had a total of 104 proposed actions in all eleven action item categories. In counting the proposed actions that relate to recreation, wilderness, natural resources, cultural resources and range management in all eleven action item categories I found the following:

	No of Items	Percent of Total
Recreation	72	69
Wilderness	30	29
Natural resources	36	35
Cultural resources	49	47
Range management	32	31

12-4 cont'd

Given the Malpais and its historic uses, I would have expected the cultural resources management to be the one with the most emphasis in the GMP. However, as you can see above it isn't, recreation is. I find your emphasis on recreation to be out-of-line with the other uses. I would think that the emphasis on recreation should be similar to that for wilderness and range management, about 30% of the total, and less than that for natural resources management.

I was also somewhat surprised to see all the proposed mountain bike and trail bike use areas and routes, given that one of the goals of the GMP is to keep the naturalness of the Malpais. I feel that the use of both mountain and trail bikes in the area, contributes greatly to the destruction of its habitat. I also see the use of these vehicles, especially the motorized ones in the NCA to be somewhat in conflict with your thought of bringing back big horn sheep.

12-5

I would like to see as little construction as possible done in the West Malpais and Cebolla wilderness areas. I support the No Change alternative for both these areas.

My comments on the NARTCA for Chain of Craters were incorporated in testimony and I have attached a copy of it for your convenience and reference.

I had expected to see the monitoring and implementation plans in the Draft. I would like to know when we will be able to review and comment on these sections of the GMP.

12-6

I have been a bit dismayed by the piece meal approach in the review process of the Malpais management plan. Please notice I'm talking about one management plan for the entire area covered by the legislation regardless of who is suppose to manage it. To date, I have commented on four seperate documents at four different times: the BLM RIM plans, the BLM

12 - Concluded

12-4. Using the figures you presented, the total number of proposed actions given in Table 2-4 is 213, not 104. (Some actions emphasize more than one resource issue.) Out of this revised total, 34 percent of the actions relate to recreation, 14 percent to wilderness, 14 percent to natural resources, 23 percent to cultural resources, and 15 percent to range management.

Visitation to the NCA has already increased as the result of designation. A certain number of developed recreation facilities is needed to direct visitor use and prevent resource damage in an area that has no such facilities.

12-5. The BLM is considering only the feasibility of reintroducing bighorn sheep in an area of the NCA that is within the boundaries of the Cebolla Wilderness Unit. Motorized traffic is limited in the Conservation Unit and Chain of Craters to existing ways and trails, and is generally prohibited within wilderness areas. The factors considered most important to the success of reintroducing bighorn sheep are the location of water and forage relative to appropriate terrain, and the proximity to domestic sheep that harbor disease organisms that are at least partially responsible for the bighorn's historical extirpation. (Refer also to the responses to comments 9-6 and 9-7.)

12-6. Please refer to the response to comment 9-8.

12 (concluded)

WSP/EA for Chain of Craters, the National Park Service EA to manage the Park Ice Flow Area and your GMP for the NCA and wilderness areas. Plus the fact we have yet to see the monitoring and implementation parts which to my way of thinking should have been included in the GMP for review at this time. If the agencies can't coordinate sufficiently to produce one proposed management plan for the entire area, how are you going to coordinate the management of it on the ground?

Thank you for the opportunity to express my comments on the GMP/EA. I would like to know when the rest of it, the monitoring and implementation plans, will be available for review.

Sincerely yours,

Judy Bishop

Judith S. Bishop

Guy E. Dahms
6308 Baker N.E.
Albuquerque, NM 87109
(505) 883-5108

Date: June 19, 1990

To: BLM
Rio Puerco Resource Area
435 Montano Rd NE
Albuquerque, NM 87107
Attn: Mr. Al Abee

Sir:

I am writing this letter in response to your (recently released) "General Management Plan for the El Malpais National Conservation Area". The portion I am addressing is the proposed route for the Continental Divide National Scenic Trail (CDNST). I am writing to express my displeasure with the proposed trail routing.

As I understand it, the majority of the proposed CDNST through the El Malpais area is along roads. If one is walking/hiking/backpacking the CDNST, this is a dismal prospect. Among those interested in the CDNST, New Mexico has a reputation as a "poor sister", whose portions are already being looked at as inferior, barely worth doing. A road-walk trail route would certainly reinforce those expectations. At first glance, it appears as if you (the BLM) are trying to make the CDNST experience as distasteful as possible!

I have read of proposed trail corridors and suggestions for trail routing which have been submitted by the Continental Divide Trail Society (CDTS). The CDTS recommendations sound much superior to the current BLM proposal, and if implemented, would result in a more enjoyable trail experience.

However, I am willing to give you the benefit of the doubt, and would be interested in hearing your side of the story. What reasons do you have to explain why the CDNST was routed as it was through the El Malpais area? Are there any efforts to follow up on the alternate routing proposals of the CDTS? I would greatly appreciate any information which you could provide. Thank you for your time and effort in responding to my questions.

Sincerely,

Guy E. Dahms

5-39

Dear Mr. ABEE:

I would just like to take a minute to ask your support of the Chain of Craters WSA for wilderness designation.

This AREA not only meets All the criteria for wilderness designation, but would also be a unique addition to the wilderness system. the Area offers the only group of craters along the Continental Divide.

I Am Also concerned with the BLMs ~~transition~~ of ranching interests while addressing the grazing management plan of the El Malpais National Conservation Area General Management Plan.

I hope you will keep my thoughts in mind As you make your decisions on this unique AREA. Thank you.

Sincerely,
John Pompeo

15

June 16, 1990
712 Fairway, N.W.
Albuquerque, N.M. 87107

Bureau of Land Management
Al Abee, Area Manager
Rio Puerco Resource Area
435 Montano Road, N.E.
Albuquerque, N.M. 87107

Dear Mr. Abee:

I am writing to you on behalf of the New Mexico Wilderness Coalition to comment on the Draft General Management Plan for El Malpais National Conservation Area. As you must know by now, the N.M. Wilderness Coalition (formerly known as the N.M. BLM Wilderness Coalition) was very active in drafting the founding legislation for the NCA, in defining the boundaries for the area, and in lobbying the Public Law 100-225 through Congress. We were extremely pleased at the successful cooperative effort involving the BLM, the NPS, the Congressional delegation from New Mexico, and various interested groups and individuals in establishing high level legal protection for this unique and highly valued area. We continue to be keenly interested in all management issues and plans for the area. Thank you for this opportunity to comment on BLM's Draft GMP for El Malpais.

This document represents a remarkable achievement in terms of the level of integration of planning for such a diverse resource area. It is clearly a major step forward in the methodology of resource management. It is the concept of the Biophysical Land Units, the thorough elaboration of this concept, and the integration of the various resource management proposals with this ecotype modeling which provide the basis for this achievement. We wholeheartedly endorse this step toward grounding natural resource management in solidly objective natural science. We are aware that there is much work to be done to fulfill the promise which this plan has begun. In support of that, my wife and I have volunteered to assist in field verification of some of the mapping data incorporated in the model. We have begun that field work recently and look forward to contributing as much as possible to this effort. Congratulations to the planning team for pulling together this credible and innovative approach to resource management planning.

The following comments regarding specific parts of the Draft GMP are founded in a wholehearted support for the legislatively stated purpose of the El Malpais National Conservation Area: " to PROTECT ...that area" (PL 100-225, Sec.301.(a).

IMPLEMENTATION AND MONITORING

Implementation and monitoring are critical aspects of resource management in the NCA, without which this planning effort will go for nought. Thus the Wilderness Coalition is looking forward to a complete plan for implementation in Chapter 8 of the Final GMP. We are very interested in the setting of the Limits of Acceptable Change for various aspects of NCA natural resource management. In particular, we would urge that current conditions not be used as the baseline against which changes would be evaluated. For example, range conditions in much of the NCA are depleted. The Limits of Acceptable Change should define allowable deviations from a targetted vegetative mix and condition rather than deviations from the present conditions. In fact BLM's Table 1-5 of the Draft describes a total of 194,700 acres as needing improvement at this time. This is an astounding 93% of the acreage in the table. The public deserves an explanation of how this situation has come about under BLM's stewardship. There is considerable evidence of overgrazing in much of the NCA, including the spreading of grasses such as Blue Grama into sod formation. It is well known that this sod formation by grasses which normally grow in separated bunches is an indication of overgrazing.

15-1

BLM must recognize that the establishment of El Malpais National Monument and National Conservation Area is leading to ever-increasing public attention to the area and to the management practices there. While the BLU methodology provides an excellent

RESPONSES TO COMMENT LETTER 15

15-1. The establishment of Limits of Acceptable Change (LAC) standards is discussed in Chapter 2 (Monitoring Guidance) of this Final GMP. As outlined in the "Vegetation" subsection of Section 7 of Chapter 2, Phase II monitoring will be based on desired plant communities. These communities will reflect both the existing and the potential vegetation in each BLU of the NCA, and the vegetative complex the BLM will manage for, based on existing and potential land uses and climatic conditions. Over time, LAC standards will be met when certain specified locations (called "indicator areas") attain the desired plant community identified for those locations.

Refer also to the response to Comment 9-3 for a discussion of NCA vegetative monitoring in Phase I, which will follow current monitoring practices until desired plant communities are established.

management in El Malpais NCA will form much of the public's perception of BLM's larger resource management capability. This is especially true since the El Malpais NCA is

15 (continued)

clearly the most highly visible area under BLM's oversight in New Mexico. BLM must make clear in the implementation chapter any and all agency resources required to fully
15-2 implement the Management Plan for protection of all natural resources and to maintain sustained yield of renewable resources. This includes a fully planned, staffed, and funded monitoring program. The Coalition is also particularly interested in implementation priorities which should be detailed in the implementation chapter.

EXCLOSURES

Monitoring should include permanent wildlife exclosures. At a recent public meeting in Albuquerque, a BLM range conservationist stated that current BLM practice is to open exclosures at least once a year and allow cattle to graze inside. Such a practice defeats much of the longer-term value of having the exclosure in the first place. We
15-3 recommend that BLM establish at least one permanent exclosure in areas typifying each BLU classification present within each Wilderness Unit and the WSA and at least one non-wilderness permanent exclosure on the eastern part of the NCA and one on the western part of the NCA for each BLU classification present. More may be needed. Closure of these areas to grazing should be strictly enforced for as long as grazing is present. These will serve as important monitoring indicators of vegetative conditions and trends independent of the impact of grazing.

CHAIN OF CRATERS

The Chain of Craters Wilderness Analysis Report correctly states that all 18,300 acres of the WSA have wilderness values (Table 6-2, All Wilderness Alternative). Having said that, BLM's recommendation then diverges from the PROTECTION mandate of PL100-225 and places an overriding priority on providing diversity of recreational opportunities in the NCA. This is a major distortion of the purpose of the NCA. Is BLM's purpose to compete with the Park Service in accomodating visitor recreational desires in El Malpais? The N.M. Wilderness Coalition strongly opposes BLM's recommendation of no wilderness in the Chain of Craters. BLM's recommendation contradicts its own Wilderness Analysis conclusions, the will of Congress, and the long-term public interest in protection of the natural resource. Furthermore this recommendation exhibits a lack of recognition of the quality and significance of the resource known as the chain of craters. This area offers a unique and valuable potential addition to the National Wilderness Preservation System. This chain of volcanic cinder cones and craters along the Continental Divide would be unique among Wilderness Areas. The special quality of the area is apparent to any sensitive observer hiking in the WSA and is undoubtedly underlying the significance attached to the area by Native Americans. To sacrifice this quality to an ill-considered desire to allow vehicling through the area would be profoundly shortsighted. It is well known among recreational bicyclists (of which I am one) that nearby areas of the Cibola National Forest offer attractive mountain biking opportunities. BLM does not need to contort itself to try to compete in offering recreational opportunities. The opportunity for wilderness recreation in solitude is too valuable to sacrifice to interagency jealousies or an ill-conceived frenzy of "marketing of the resource." The Chain of Craters should be designated Wilderness, and BLM should so recommend in the final GMP.

However, the All Wilderness Alternative as described by BLM (Table 6-3) is somewhat flawed. The BLM would continue grazing at current levels. Having traversed the WSA several times in the past and twice this year, I have observed extensive indications of overgrazing in the form of heavily impacted rangeland grasses. A Range Improvement Management Plan should address this deterioration of the renewable resource. The area is currently under near-drought conditions without a drought response plan by BLM. The blanket proposal to continue grazing at current levels
15-4 contradicts good rangeland management practice, FLPMA mandates to manage for sustained yield, and BLM's own stated policies. BLM can do a better job of monitoring rangeland conditions (permanent exclosures, for example) and adjusting stocking levels to achieve sustained yields. Again, we would reiterate the Congressional mandate to PROTECT the resource. If the best way to protect and preserve the natural character of these areas is to buy out the private grazing allotment rights and eliminate grazing, then BLM should seriously consider this as a viable and responsible management approach.

Another issue under the All Wilderness Alternative is BLM's statement that it "would recommend legislative authorization for vehicular access for traditional cultural and
15-5 religious uses." Vehicular use in the area is undoubtedly limited to a part of the 20th century. Special legislative authorization for such use in a Wilderness Area may be legally in conflict with the Wilderness Act. Before making such a recommendation, BLM

15 - Continued

15-2. Implementation of the proposed management prescriptions and actions for the NCA is fully discussed in Chapter 3 of this Final GMP. This chapter includes estimates for staffing and funding needs, as well as implementation priorities (phases).

15-3. It is not true that BLM livestock exclosures are opened once a year. They are completely closed to livestock grazing for a period of several years. Please refer to the response to comment 7-5.

15-4. Title III, Section 302(d) of the El Malpais legislation authorizes the continuation of grazing within the NCA. In general under BLM wilderness management policy, livestock numbers are maintained at the approximate levels existing at the time an area enters the wilderness system or the wilderness study process.

In the Chain of Craters Wilderness Study Unit, the grazing levels range between 5 and 10 head per section per year, a level that would continue under the All Wilderness Alternative. However, within this stocking range, adjustments can be made. Two such adjustments are planned for Allotments 200 (Cerro Chato) and 207 (Cerro Brillante), where reductions are proposed.

15-5. The special emphasis that the El Malpais legislation places on American Indian access for religious purposes mandates solutions to this issue. The BLM believes that controlled vehicular access can be provided without degrading the wilderness characteristics of the NCA's wilderness areas and the Chain of Craters. Please refer to Chapter 4 of this Final GMP for more information on this concern.

15 (continued)

15-5 cont'd

should seek a Solicitor's opinion regarding the legal implications. The Wilderness Coalition recognizes and supports the rights of Native Americans to carry out traditional practices. We believe a reasonable and workable approach has been described by the National Park Service in its Draft GMP for the National Monument. Specific language is on page 184, column 2 of the NPS document, dated January, 1990.

CONTINENTAL DIVIDE TRAIL

BLM's proposal for rerouting a part of the Continental Divide Trail appears to be founded on an accurate and reasonable assessment of the likelihood of heavy impact if the Trail followed the original proposed east side route. There is no doubt that soils on the east side are far more easily eroded than those on the west side of the NCA, as evidenced around La Ventana Arch, and in many parts of the Cebolla Wilderness. This is an excellent example of the value of the BLU mappings as a tool for visualizing prominent characteristics of an area and facilitating appropriate management of the natural resources. Routing the Trail along the Acoma-Zuni lava trail and through the chain of craters area, including the WSA, provides a unique and attractive hiking opportunity while protecting sensitive areas. Impact of concentrated hiking along the

15-6

Trail within the WSA should be closely monitored. The final GMP should propose management prescriptions to monitor for such impact and to mitigate unacceptable impacts when they are detected..

CEBOLLA WILDERNESS AREA

The N.M. Wilderness Coalition fully supports the Management Objective for Naturalness as stated on p. 4-6: "by allowing natural systems to operate freely with minimal human interference" and on p.4-15 "and secondarily provide for public enjoyment of the area as wilderness." It is to be emphasized that visitor use is secondary to the preservation of natural systems in all Wilderness areas. Similarly, range management objectives must operate within the operation of natural systems as BLM has indicated on the pages noted above. Impacts due to grazing are prominent within the Cebolla Wilderness, including vegetative conditions and mixes, and severe soil erosion. Grazing allotment levels (AUMs) must be scrutinized and adjusted to restore the operation of natural processes within the Cebolla. Range conditions should be restored so that desert bighorn sheep could be reintroduced, as mentioned on p.4-22, without having to compete with cattle for forage, cover and water. This would be one excellent indicator, on a large scale, of the operation of natural processes. The BLM has some conflicts built into its management objectives. These conflicts are centered around grazing and range management practices and

15-7

are critical within the Cebolla Wilderness Area. It is not going to be possible to continue allowing cattle grazing to overwhelm natural ecological processes. BLM must address this issue for the Cebolla and for the entire El Malpais NCA.

BLM has in fact addressed the potential conflicts between protection of cultural resources and preservation of naturalness and the wilderness character. The NM Wilderness Coalition supports the policy stated on p.4-32, for example, "the manner in which cultural resources will be managed is different within wilderness areas in that approved actions also may not adversely affect the overall wilderness character." Similarly, BLM has addressed potential conflicts arising from recreation or other visitor use as mentioned previously on p.4-15 and on p.4-36: "No facilities would be developed for visitor convenience (trails, etc.)...Facilities would be designed to provide maximum protection to wilderness character..." But when the potential conflicts arise from grazing, BLM has a blind spot. El Malpais is a major test case for the BLM to demonstrate whether it can overcome that historical bias for accomocating grazing regardless of the environmental costs.

WEST MALPAIS WILDERNESS AREA

Management goals are well-stated for the West Malpais Wilderness Area in Section 4 of Chapter 5. In this area, reclamation of some human-caused damage is

15-8

necessary. Particularly critical is the rehabilitation of damage by vehicular use and adequate controls to prevent future unauthorized vehicular use. Fencing may be necessary along the County Road 42 boundary. Other barriers may also be required.

The suggestion that the antelope herd may be augmented with transplant

15-9

animals is of interest to the Coalition. We request to be fully advised of developments toward this action, including studies of the status and trends of the existing population, and habitat condition and carrying capacity. The Coalition requests advisement and comment opportunity on corresponding Environmental Assessments.

15 - Continued

15-6. The monitoring and implementation chapters (2 and 3) in this Final GMP discuss methods to be used to monitor recreational use and mitigate the unacceptable impacts of that use on the NCA's natural and cultural resources.

15-7. Please refer to the responses to comments 7-5, 9-3, and 15-4 above.

15-8. Chapters 2 and 3 discuss methods to be used to monitor natural conditions in the NCA, including the wilderness areas. Under the Naturalness initiative in Chapter 3, vehicular ways in wilderness may be revegetated and some access points physically blocked.

15-9 cont'd in this regard, we are concerned that the operation of natural processes not be subordinated to management emphasizing the cultivation of a single big game species.

The Coalition strongly supports the emphasis on educating the public regarding wilderness values and appropriate visitor behavior. We support the goal of modifying behavior through providing information and education. Ultimately, enlisting visitor support and participation is the only way to ensure protection of wilderness areas exposed to many visitors.

The same approach is appropriate for cultural resources. We recognize that much cannot be revealed regarding cultural site locations and traditional and continuing Native American practices within the NCA. The educational opportunities for BLM's interaction with visitors is enormous and carries significant responsibilities. We are favorably impressed with BLM's response to this challenge thus far, both in terms of actions to date and the relevant Management prescriptions and actions described in this document.

15-10 There is an accompanying challenge regarding management of visitor impact through the use of trails. We question whether it is best management to concentrate visitor use on designated trails, especially in the West Malpais where hiking use is relatively low. Dispersed hiking will occur in any case, and designated trails are not needed in this area. The monitoring plan should carefully specify how such impact will be assessed and what the Limits of Acceptable Change will be.

ADDITIONS TO NCA

The Coalition is strongly supportive of the proposed expansion of the NCA boundary. We find the BLM's reasoning for these additions to be sound and convincing. BLM has done a very responsible and appropriate job of utilizing up to date information on cultural site location and density and BLU ecosystem modelling to arrive at these conclusions. We believe that these additions, appropriately managed, will provide the best opportunity for well-integrated management for the entire NCA.

5-43

SUMMARY

Overall, the BLM has done an enormous amount of work in preparing this document and has done it well. It is well-founded on sound principles, goals, and methods. The New Mexico Wilderness Coalition intends to continue a high level of participation in the planning process as well as supporting appropriate funding appropriations by Congress. We trust that our comments will be accepted in the spirit with which they are offered: from a genuine concern for the preservation and protection of the many resources represented within the El Malpais area.

Sincerely,

John Somers
For the NM Wilderness Coalition

cc: Dutch Salmon
Statewide Coordinator, NM Wilderness Coalition
Jim Fish
Board Member, NM Wilderness Coalition
Hon. Bill Richardson
US House of Representatives
Mr. Larry Woodard
State Director, BLM

15 - Concluded

15-9. All management objectives developed for habitat management in the entire NCA are meant to manage for healthy habitats that will support the diversity of wildlife that exists there. Those objectives that specifically address game species reflect cooperation with the New Mexico Department of Game and Fish.

15-10. Please refer to response to comment 9-1. In Chapter 2 of this Final GMP, monitoring for recreation impacts is discussed in Section 7 under "Recreation Setting (Physical Aspect)."

16

Bureau of Land Management
Al Abeo, Area Manager
Rio Puerco Resource Area
435 Montano Rd. NE
Albuquerque, N.M. 87107

Dear Mr. Abeo:

I thank you for this opportunity to comment on the El Malpais NCA-GMP. I am encouraged by the amount of information in this document and can appreciate the amount of work involved. I also support wilderness protection for the area. However, I have some grave concerns about the basic land ethic of BLM and the general direction it is taking.

5-44

With this land owned by the public and you as stewards of this land it is your obligation to protect the Archeological resources, wilderness, wildlife, Native American uses and last of all recreation. In fact, these purposes are stated in that order in section 6 of chapter 2. However, the basic land ethic of BLM has turned this around to put recreation first, so your ethic of exploitation has not changed, simply shifted, from grazing and mining to recreation. I am deeply disturbed by the amusement park management practices being implemented by BLM in general and this plan in particular. Developing recreation is seen as a way to compete for millions of new dollars--at the expense of the land. What happened to the land ethic to protect the land? The American public is moving in that direction but the BLM is not. Antiquated consumer management practices of the past century will not suffice in the new century.

16-1

This plan creates typical token wilderness but does nothing to heal the scars created by previous mismanagement. For example, unnecessary roads should be closed (especially roads that cut through the area) and limited access should be provided. Much more of the area should be managed as wilderness. The insinuation that wilderness would cause wildlife to leave is completely missing the point. If you must maintain artificial waters to keep wildlife in an area then their numbers are artificially high and they are probably damaging the forage which is adapted to the dry conditions. Wilderness areas should function naturally.

16-2

At a time when habitat is disappearing at an exponential rate we can not afford these exploitive practices. It has been 14 years since FLPMA and this new amusement park approach being taken by BLM is very disturbing. I sincerely hope that it ends soon and a more ecological management ethic develops. I would like to have seen an ecological management alternative in this document.

16-3

Sincerely,

Robert Tafoya

RESPONSES TO COMMENT LETTER 16

16-1. Refer to the response to comment 12-4.

16-2. Road closures will be considered as a management option if monitoring indicates undesirable changes are occurring in the NCA's resources. Unnecessary roads will be closed.

16-3. The adoption of the BLU concept is a clear attempt on the part of the BLM to take an ecological approach to managing the NCA. The basic issues addressed in the GMP have been derived with input from public comments and meetings. Wildlife, natural resources, and grazing are identified as important NCA management issues; balancing these issues to benefit the complex ecological systems present in the NCA is the major focus of the document. A set of management alternatives for each issue was presented to the public (in the December, 1988, edition of the El Malpais Update newsletter) before the GMP was completed.

17

6-16-90

Mr. Al Abee, Area Manager
Bureau of Land Management
Rio Puerco Resource Area
435 Montano Rd. NE
Alb. NM 87107

We are mountain bikers. We would greatly love to have more areas set aside for dirt riding. We know the kind of conditions that make for good riding.

17-1 However, the "Chain of Craters" area should **NOT** be set aside for bicycling. It should go into the wilderness system. It is not suitable for biking as the dirt is too soft and powdery when dry and is slick goo when wet. The area is mainly flat, piñon and juniper, with no climbs or views. The cinder cones are too steep and cutting.

Please consider other areas for us dirt bike folk and join the "Chain of Craters" in with the "West Malpais wilderness". Thank You.

Signed:

RESPONSES TO COMMENT LETTER 17

17-1. Please refer to the response to comment 7-1.

18

2813 Tennessee, NE
Albuquerque, NM 87110
July 16, 1990

Rio Puerco Resources
Bureau of Land Management
435 Montano Blvd, NE
Albuquerque 87107

Resources Personnel:

Some time ago you requested comments on the Chain of Craters area west of El Malpais National Monument.

This is an area in which I have hiked, a least a portion of it. It certainly qualifies as an area suitable for wilderness designation. Evidence of man's use is minimal. Were the area to be closed to vehicle traffic, and a fence and a couple of metal tanks removed, nature would soon reclaim it. It is isolated. It is lonely. It is in outward appearance a forbidding landscape. It is a dangerous place to hike because of the number of ways one can insure one's self. It lack water. Have I listed all the negative aspects of the Chain of Craters? Notwithstanding all of minus qualities, the positive reasons for having the Chain of Craters made into a wilderness area are numerous.

Isolation. Although the Craters can be reached by car, in anything but the best of weather, stay out. So here you have a hike, back packing area in which you will encounter no cars.
The landscape. For many this is an area that has few amities. Yet if one walks through the valleys and hills, the colors are lovely. The light on the small volcanoes is ever changing, a challenge to a photographer, let me assure you!

18-1 In any comments about this region, I must emphatically point out one thing: keep off road bikes out of there. The temptation to ride up an ash volcano would be too great to resist. Just one biker tearing up the side of a volcano would do irreparable damage. No wheels in the Chain!

Are there more reasons to recommend the Chain of Craters for wilderness designation? Many. Preservation of wildlife. Put big horn sheep back. Keep cattle out. Why should a hiker have to step around cow pies!

As a person who walked across those lava beds as early as 1935, may I recommend wilderness designation for the Chain of Craters.

Yours,

Arthur Loy

Arthur Loy

RESPONSES TO COMMENT LETTER 18

18-1. Please refer to the response to comment 9-7.

COMMENTOR NUMBER 19
(Jack Moleres - Grants Wilderness Hearing)

19-1. If it is passed, this wilderness, I would like to see this boundary changed from between Township 6 and 7 on your book -- page 6-3, it says here, which it would make it easier for -- there is about 8 miles of fence in there, and when you make a wilderness, it's pretty hard to get in there to fix fences because they don't let trucks or anything in there, so that it would eliminate that.

Furthermore, when you have pinon near there, there is no way that you're going to keep the public out of that three or four sections that's there on that -- on that little piece there between 6 and 7.

RESPONSE TO COMMENTOR NUMBER 19

19-1. The BLM is proposing to recommend the Chain of Craters as nonsuitable for wilderness. An amended boundary alternative was considered but not fully evaluated because the impacts would be similar to those identified under the All Wilderness Alternative. A final legislative EIS for the Chain of Craters is being prepared. Only Congress can either designate the area as wilderness or release it from the wilderness review process. If Congress designates the area as wilderness, the BLM Wilderness Management Policy allows for the occasional use of motorized vehicles to maintain fences when no practical alternatives exist.

COMMENTOR NUMBER 20
(Jim Fish - Albuquerque Wilderness Hearing)

20-1. The only argument presented in the plan against a wilderness designation is that there is already a large fraction of the NCA designated wilderness. That is not an issue.

The Chain of Craters should be evaluated on its own merits, and I feel like the BLM did not make a strong case against wilderness. I think they made a very strong case for wilderness in their evaluation of the area, and it looks like a decision was made to go against wilderness and then an attempt was made to justify that and was -- and that attempt was not convincing from what I've read.

RESPONSE TO COMMENTOR NUMBER 20

20-1. Please refer to Chapter 4 of this Final GMP for a discussion on the Chain of Craters.

COMMENTOR NUMBER 21

(Marian Miller - Albuquerque Wilderness Hearing)

21-1. I'm against the closing down of the [Cerro Chato] water well. I think as dry as it is up there, any water is important, and I think that wellhead should remain.

RESPONSE TO COMMENTOR NUMBER 21

21-1. The No Wilderness Alternative is the BLM's recommendation for the Chain of Craters. However, the final decision on wilderness designation will be made by Congress. To conclude the wilderness review process for the Chain of Craters, the BLM is now preparing a final legislative Environmental Impact Statement (EIS). A thorough evaluation of the need to close the Cerro Chato well will be undertaken as part of this EIS.

COMMENTOR NUMBER 22
(John Somers - Albuquerque Wilderness Hearing)

22-1. Also, I noted that the plan mentions, under the wilderness alternative, I believe it is, that the agency will recommend legislative action to ensure vehicular access to the area for certain purposes, and I haven't fully assessed the significance of that, but I do know that it would be a precedent nationwide with regard to wilderness areas, and in that regard, I request that the agency take positive steps to inform the national conservation organizations and any organizations that are interested in wilderness on a national scale, and I would include in that the Sierra Club and the Wilderness Society and the Audubon Society and the National Parks and Conservation Association.

RESPONSE TO COMMENTOR NUMBER 22

22-1. At this time, the BLM is consulting with several local American Indian groups to develop procedures for limited vehicular access to the Chain of Craters for traditional cultural and religious purposes. These procedures will be consistent with the American Indian Religious Freedom Act and the Wilderness Act. The BLM is also consulting with the Department of the Interior's Field Solicitor for additional guidance in this matter. Please refer to the response to Comment 15-5 above and to Chapter 4 of this Final GMP for more information on this concern.

COMMENTOR NUMBER 23
(Mike Mechenbier - Albuquerque Wilderness Hearing)

23-1. I'm a rancher in the area of the Los Cerros Allotment, and I would recommend that it not become wilderness.

I understand there is a criteria of minimal [manmade] improvements in the area and so forth. Our allotment has roads, a pipeline and dirt tanks, and I feel it would be an undue hardship on the ranching community out there if it was included.

We're going to be losing a large portion of our allotment to the parks. We've already had some of it taken in by the wilderness, and this is just an additional area that would sure be a hardship to us.

As far as the pipelines and all, we are allowed to access it with motorized vehicles, as far as the maintenance of our improvements, and I really don't see what it would accomplish at this time to make it wilderness.

The other thing is it would be hard to access, being that the Indians are on the west, the Navajos, and we surround the majority of the east boundary with deeded land, and if it became wilderness, it would be very hard for people to access it in the first place, especially our allotment.

RESPONSE TO COMMENTOR NUMBER 23

23-1. The No Wilderness Alternative is being recommended by the BLM for the Chain of Craters. If, however, the area is designated by Congress as wilderness, the El Malpais legislation and the BLM Wilderness Management Policy allow for the occasional use of motorized equipment to maintain range improvements. In the event of designation, a Range Improvement Management Plan will also be prepared to address routine maintenance of range improvements in the unit.

CHAPTER 6

Revisions of the Draft GMP

Chapter 6
Revisions of the Draft General Management Plan (GMP)

INTRODUCTION

This chapter presents the modifications and corrections to the Draft GMP. In most cases, the revisions involve a few words or a phrase of a sentence; the revised text is shown in **bold print**. General changes are followed by specific revisions to each chapter, listed in order as printed in the draft. Several maps and tables are reprinted following the text revisions.

GENERAL REVISIONS

1. In response to a comment received at the public meeting in Grants, the term "Native American" should read "American Indian" throughout the Draft GMP.

2. The term "South Big Narrows" should read "South Narrows" in the Draft GMP.

3. In response to a public comment on the Draft GMP, it should be noted that the BLM in New Mexico has in place a policy regarding the treatment of human remains. In accordance with the American Indian Religious Freedom Act and the Archaeological Resources Protection Act, the BLM consults with local Indian tribes regarding proposed federal actions on public land and avoids sensitive sites whenever possible. In 1990, Congress passed the Native American Graves Protection and Repatriation Act, which also affects this sensitive matter. BLM policy will be modified to reflect this most recent legislation.

4. Since the Draft GMP was released, the GIS model used to analyze the BLUs has been refined as planned. Information at a smaller scale from several time periods has been sampled.

The result of this refinement has been that some biophysical components of the NCA have been recognized to form a previously unidentified BLU, called "BLU L" in this Final GMP. This BLU is described below in the revisions to Chapter 1, and is plotted with the other BLUs in the NCA on Map C (contained in the map pocket inside the back cover of this document). As implementation of this GMP proceeds, BLM managers and staff will take into account this new information.

Because all BLU data resides in the BLM's Geographic Information System (GIS), the BLUs used in the Draft GMP have been retained for reference in the GIS data base. Concurrently, the enhanced BLU model has been processed for use in implementing the GMP. GIS is thus being successfully and effectively used to incorporate improvements and modifications in spatial analysis and modeling, without losing any previous information or making it obsolete. One reason GIS was chosen to model the BLUs was this ability to allow evaluation of the existing environment and subsequently establish frameworks for monitoring and comparison of resource conditions over time through spatial change detection.

CHAPTER 1 REVISIONS

1. Page 1-2, column 1, paragraph 5, sentence 2: The reference to the wildlife resources management plan should be corrected to read, "**Chapter 11**."

2. Page 1-6, column 1, paragraph 3, sentence 1: Should read, "American Indian use of **the area that is now** the NCA began **about 12,000** years ago, and continues to the present day."

3. Page 1-13, column 1, paragraph at top of column, first full sentence: Should read, "Ponderosa parkland is characterized by mature ponderosas (**50+** years old), standing wide apart in grassy meadows."

4. Page 1-13, column 2, end of Section 4: The following BLU description should be added to those contained in Chapter 1 of the Draft GMP.

Biophysical Land Unit L

BLU L is formed of fan terraces, drainages, flat floodplains, and playas that can be found both in low-lying areas and on flat mesa tops. These terrain forms have very little slope, with the greatest extreme to no more than 10 percent.

The soils of BLU L are of low to moderate erosion potential, being composed of sandy clay loams and cobbly sandy loams. In wet years, transient standing water may be present. This water provides some visual contrast in an otherwise flat and open terrain.

The vegetation of BLU L is sparse to bare, and consists of grasses, forbs, and some sage. Grasses can include blue grama (in sod form), sand dropseed, bluestem wheatgrass, and some galleta. Of the three sages found in the NCA, the most common in BLU L is fringed sage. Common forbs include kochia, mallow, and aster species. Combined with the nature of its other biophysical components, BLU L's vegetation is extremely sensitive to climatic variation and surface disturbance.

5. Page 1-15, column 2, paragraph 1, insert as last sentence: "**(Refer to Table 1-6 and the text preceding it in this chapter for more information on VAC.)**"

6. In Table 1-2 on page 1-16, column 5 ("Social Setting"): The first, third, fourth, and fifth entries should be moved to the sixth column ("Recreation Variables"). The last entry in the sixth column should be moved to the fifth column.

7. Page 1-17, column 2, paragraph 1, insert after sentence 1: "**Different types of lands within a BLU require different management practices. For example in** wilderness, . . ."

8. Table 1-4, page 1-22, column 4 ("Management Emphasis for Habitat Feature"): The first entry for BLU C should read, "Allow removal of **selected** dead & down wood." The third entry should read, "**Retain** mature live pinons". Add as the fourth and fifth entries for BLU C, "**Retain selected dead standing & down wildlife trees**" and "**Retain down log habitat**".

9. Table 1-4, page 1-23, column 4 ("Management Emphasis for Habitat Feature"), second entry for BLU G: Should read, "Allow removal of some **selected** dead & down wood to protect against damaging fire." The fourth entry for BLU G should read, "**Retain living & dead, standing & down wildlife trees**". Add as the fifth entry for BLU G, "**Retain down log habitat**".

10. Table 1-4, page 1-23, column 4 ("Management Emphasis for Habitat Feature"), second entry for BLU H: Should read, "Allow removal of some **selected** dead & down wood". The fourth entry for BLU H should read, "**Retain living & dead, standing & down wildlife trees**". Add as the fifth entry for BLU H, "**Retain down log habitat**".

11. Table 1-4, page 1-23, column 4 ("Management Emphasis for Habitat Feature"): Add as the fourth and fifth entries for BLU J, "**Retain living & dead, standing & down wildlife trees**", and "**Retain down log habitat**".

12. In Table 1-4, page 1-23, column 5 ("Species Affected"): Add as the entry for BLU F, "**15 species of birds; 3 species of lizards**." In the same column, the entry for BLU J should be revised to read, "Deer, elk, bear, coyotes; invertebrates".

13. Table 1-4, page 1-24, column 4 ("Management Emphasis for Habitat Feature"), second entry for BLU K: Should read, "**Retain living & dead, standing & down wildlife trees**". The third entry for BLU K should read, "**Retain down log habitat**".

CHAPTER 2 REVISIONS

1. Page 2-1, column 2, paragraph 1: Should read, "The legislative emphasis for the NCA is on conservation. **The NCA is an area of public land where special management attention is required to protect and prevent**

irreparable damage to important values and resources. According to the legislation that designated the NCA, the special values in El Malpais include "unique and nationally important geological, archeological, ecological, cultural, scenic, scientific, and wilderness resources." The NCA designation indicates to the public that the BLM recognizes these special values and has established special management measures to protect them. Designation also serves as a reminder that these special values must be accommodated when future management actions and land use proposals are considered within the NCA." Paragraph three of Section 1 is the paragraph remaining, "Many of the proposed actions in this GMP . . . and other federal entities."

2. Page 2-1, column 1, last paragraph, end of first sentence: Should read, ". . . which was finalized in 1986. **The RMP was prepared to provide a comprehensive framework for managing the public lands and for allocating resources in the Rio Puerco Resource Area.** (Refer to Appendix C . . ."

3. In Table 2-2 on page 2-3, the title of the table: Should read, "Current Authorized BLM Staff **in** Grants, NM". The following information should be added to the table: "**Law Enforcement Ranger**; **GS-9**; **$23,846**; **1.0**". The authorized annual total for salary should read, "**$103,062**" and the total FTE should read, "**5.0**".

4. In Table 2-3 on page 2-3, the following information should be added: "**Archaeologist**; **GS-9**; **$23,846**; **1.0**". The proposed total salary should read, "**$252,600**" and the total FTE should read, "**11.9**".

5. Page 2-4, column 1, paragraph 2, last sentence: Delete the phrase, "ensuring that it receives more intensive management."

6. Page 2-4, column 1, paragraph 3, sentence 1: The acreage figure for the proposed Techado Mesa expansion to the NCA should be **11,520** acres of public land. Map 2-1 has been corrected to reflect this change and is reprinted in this Final GMP.

7. In Table 2-4 on page 2-11, last entry in column 1 ("Proposed Action"): Should read, "Inform visitors of importance of **dead & living** wildlife trees, **dead & down trees & logs**, . . .

8. In Table 2-4 on page 2-13, the next-to-last proposed action under the heading, "Implement Mitigating Measures": Should read, "Bring staffing level up to **11.9** FTE for Grants Field Station".

9. In Table 2-4 on page 2-13, the last two entries in the second column ["Related Resource Issue(s)"]: Should read, "**Cultural Resources**."

10. Page 2-15, column 1, paragraph 1, sentence 3: Delete the second clause, ". . . and is a description of how the BLM is managing the NCA before the GMP is approved."

11. Page 2-15, column 2, paragraph 2, sentence 1: Should read, "Under the Low Change Alternative, the BLM would manage forage **to improve range trend and ecological condition on 'I' category allotments.**"

12. Page 2-15, column 2, paragraph 3, last half of last sentence: Should read, ". . . it places much more emphasis on **protecting** the cultural resources within the NCA, rather than on **protecting** equally important resources outside the NCA."

CHAPTER 3 REVISIONS

1. Page 3-13, column 2, paragraph 4, last sentence: Should read, "Criteria and basic requirements for the route are found in **the** Continental Divide National Scenic Trail Comprehensive Plan (USDA, FS 1985)."

2. In Table 3-3 on page 3-18, third subheading in column 1 ("Management Prescription"): Should read, "**Resource Protection**."

3. Page 3-27, column 1, paragraph 1: Add the following as the last sentence, "**(Note: If the BLM develops the Field Learning Center at Mertz Ranch, compliance with federal housing standards will be ensured before employees and/or visitors can occupy ranch buildings.)**"

4. In Table 3-13 on page 3-39, column 2 ("Action"), first entry: Should read, "Construct kiosk in T10N, R10W, Sec. 2 (refer to Kiosk discussion)." Column 2, third entry: "Consider a pullout in T6N, R12W, Sec. 18 where vegetation changes from shrub-conifer to grass-shrub **to accommodate interpretation of high desert ecosystem wildlife viewing**".

5. Page 3-15, column 1, seventh policy item, sentence 2: Should read, "Private and public lands bordering the NCA whose acquisition **and inclusion** may enhance . . ."

6. Page 3-40, column 2, last paragraph, sentence 4: Should read, "Regardless of where it is located in the NCA, a particular BLU **has the potential to support** similar wildlife species diversity and density, . . ."

7. In Table 3-14 on page 3-44, column 4, second entry: Should read, "Removal of **selected** fuelwoods for home use will benefit **people &** habitat".

8. In Table 3-14 on page 3-44, sixth management prescription, "Protect species diversity," first action: Should read, "**Protect** identifiable special use sites such as . . . mammal burrows, **living & dead** wildlife trees, **down trees,** down logs, prairie dog towns".

9. In Table 3-15 on page 3-45, second management prescription, "Protect all wildlife", third action: Should read, "Allow fuels reduction (using fire) & collection of dead/down wood for home use where surveys indicate such **collection will not undermine wildlife values**".

10. In Table 3-15 on page 3-45, fourth management prescription, "Protect hole nesting wildlife", first action: Should read, "**Retain living & dead, standing & down** wildlife trees".

11. In Table 3-15 on page 3-45, sixth management prescription ("Protect raptor populations"): Should read, "**Retain** habitat critical to raptor food supply".

12. Page 3-46, column 2, paragraph 2, last phrase: Should read, ". . . and the **management category** of each allotment."

13. In Table 3-16 on page 3-50, seventh column entry ("Category"), for Allotment 211: Should read "**M (Maintain).**"

14. Page 3-52, paragraph 2, last sentence: The reference to Table 3-17 should be changed to refer to **Table 3-16**.

15. Page 3-55, column 1, paragraph 3: Should read, "*Changes in management practices, **range improvements,** and/or reductions . . . would: (1) **facilitate** improved ecological condition, provide **improved** forage . . ."

16. Page 3-55, column 2, third paragraph: Should read, "Data derived from monitoring studies **and wildlife transects** will be used . . ."

17. Page 3-58, column 2, clause at top of page: Should read, ". . . material **will** be protected for scientific research purposes."

18. In Table 3-21 on page 3-60, first action for the management prescription, "Protect pinon pine": Should read, "**Retain** selected mature live trees". Add as the second and third actions for the same management prescription, "**Retain selected dead standing & down trees**", and "**Retain down log habitat**".

19. Page 3-61, column 2, last paragraph, first sentence: Should read, "**Projecting the results of the 1989 archeological survey in El Malpais,** an estimated 83 percent . . ."

20. Page 3-62, column 2, first assumption: Should read, "The principal threats . . . erosion, and natural deterioration. **Federally authorized actions can also adversely affect cultural resources, although BLM procedures attempt to minimize such impacts.**"

21. Page 3-62, column 2, add a third item under "Assumptions" to read as follows: "***Funding will be available to implement this plan.**"

22. Page 3-66, column 2, fourth item under the heading, "Assumptions": Should read "*Continuous communication and interaction with **local American Indian** groups . . ."

23. Page 3-66, column 2, third item under the heading, "Policy": Should read, "* The American **Indian** Religious Freedom Act requires federal agencies to consider the effects of their actions upon the practice of traditional **American Indian** religions."

24. Page 3-68, column 2, paragraph 2, sentence 3: The reference to Map 6-6 should be changed to refer to **Maps 3-5** (in Chapter 3 of the Draft GMP) and **C-1** (in Appendix C).

25. Page 3-69, column 2, last two lines of the paragraph at the top of the column: Should read ". . . improvements, and the prevention of forage loss **and erosion** through **watershed improvement**."

26. Page 3-69, column 2, paragraph 3, first sentence: Should read "Removal of livestock . . . is not expected to **significantly** reduce . . ." Same paragraph, second sentence should read: "Increases or decreases . . . vegetative condition, trend monitoring transects, **wildlife allocations, and a determination of suitable acres,** . . ."

27. Page 3-70, column 1, paragraph 2, second sentence: Should read, "Because the acreage . . . is less than .2 percent of the Conservation Unit, **little** impact . . ."

28. Page 3-71, column 1, paragraph 1, first sentence: Should read, "In conclusion, . . . access for traditional **American Indian** cultural practices, **enhance** privacy and respect for those practices, . . ."

29. Page 3-71, column 2, last paragraph, first sentence: Should read, "In conclusion, **the BLM would manage forage to improve range trend and ecological condition on 'I' category allotments.**"

CHAPTER 4 REVISIONS

1. Page 4-22, column 2, paragraph 4: Add as the final sentence, "**AUMs could be reallocated to accommodate the bighorns.**"

2. Page 4-22, column 2, paragraph 6, sentence 2: Should read, "Developed waters are located on **both public and** private lands within wilderness boundaries."

3. In Table 4-10 on page 4-28, third management prescription ("Protect identifiable special use sites"), first action: Should read, "**Protect** identifiable special use sites such as . . . mammal burrows, **living & dead** wildlife trees, **down trees,** down logs, prairie dog towns".

4. In Table 4-11 on page 4-29, third management prescription ("Protect hole nesting wildlife"), action: Should read, "**Retain living &** dead standing **wildlife** trees".

5. Page 4-30, column 2, first policy item: Should read, "*Authorized material collection of wilderness resources must be conducted in **a relatively inconspicuous** manner." Second policy item: Should read, "*Permanent or temporary study plots or structures must be **as** inconspicuous **as possible.**"

6. Page 4-30, Table 4-12, column 2 ("Action"), sixth item: Should read, "**Evaluate the** establishment of a Field Learning Center . . . "

7. Page 4-31, column 2, paragraph 3, sentence 1: Should read, "**Projecting the results of the 1989 archaeological survey in El Malpais, an** estimated 83% of all archaeological sites . . ."

8. Page 4-32, column 1, fourth assumption: Should read, "The principal threats . . . erosion, and natural deterioration. **Federally authorized actions can also adversely affect cultural resources, although BLM procedures attempt to minimize such impacts.**"

9. Page 4-32, column 1: Add as fifth item under "Assumptions," "***Funding will be available to implement this plan.**"

10. Page 4-33, column 2, sentence at bottom of page: Should read, "The following prescriptions. . . damage from soil erosion now **estimated to be** impacting 83% . . ."

11. Page 4-36, column 2, second entry under the subheading, "Policy": Should read, "PL 100-**225** requires . . ."

12. Page 4-37, column 1, paragraph 1, sentence 1: Delete the phrase, "two times per year".

13. Page 4-37, Table 4-17, column 2, ("Action"), first entry: Should be deleted.

14. Page 4-38, column 1, first paragraph, sentence 4: Should read, "**American Indian** uses of the Cebolla Wilderness Unit would be continued."

15. Page 4-39, column 1, paragraph 1, sentence 1: Should read, "Forage condition would be **managed for** increasing trends . . ."

16. Page 4-39, column 1, paragraph 2, sentence 1: Should read, "Range improvements such as **vegetation manipulation and erosion control measures** would be constructed only where needed to restore natural ecological processes."

17. Page 4-40, column 1, paragraph 3: Should read, "In conclusion, implementation of the preferred alternative would ensure privacy and respect for **traditional** practices, . . . with local **American Indian** groups."

18. Page 4-41, column 1, paragraph 3, sentence 1: Should read, "In conclusion, forage condition for livestock would be **improved over time**."

CHAPTER 5 REVISIONS

1. Table 5-7, page 5-17, title: Should read, "Grazing Allotments Partially Located in the **West Malpais Wilderness** Unit". The name of Allotment 203 should read "**El** Malpais".

2. Page 5-17, column 1, paragraph 2, sentence 1: Should read, "**Four out of the** five allotments . . . category." Add as Sentence 3: "**Allotment 201, Cerritos de Jaspe, is an "M" (Maintain) category allotment in acceptable ecological condition with no significant resource conflicts.**"

3. In Table 5-11, page 5-24, fourth management prescription ("Protect identifiable special use sites"), first action: Should read, "**Protect** identifiable special use sites such as . . . mammal burrows, **living & dead** wildlife trees, **down trees,** down logs".

4. In Table 5-12 on page 5-25, third management prescription ("Protect hole nesting wildlife"), action: Should read, "**Retain living &** dead standing **wildlife** trees".

5. Page 5-26, column 1, first full policy item: Should read, "*Authorized material collection of wilderness resources must be conducted in **a relatively inconspicuous** manner." Same page, column 2, first policy item: Should read, "*Permanent or temporary study plots or structures must be **as** inconspicuous **as possible.**"

6. Page 5-26, Table 5-13, column 2 ("Action"), sixth item: Should read, "**Evaluate the** establishment of a Field Learning Center . . ."

7. Page 5-28, column 1, sentence introducing Table 5-15: Should read, "Table 5-15 . . . damage from soil erosion, now **estimated to be** impacting 83% . . ."

8. Page 5-33, column 1, paragraph 1, sentence 1: Should read, "Forage condition would be **managed for** increasing trends . . ."

9. Page 5-35, column 1, paragraph 2, sentence 1: Should read, "In conclusion, forage condition for livestock would be **improved over time.**"

CHAPTER 6 REVISIONS

1. Page 6-6, Table 6-3, column 2 ("All Wilderness Alternative"), fourth item ("Permits . . .precluded."): Delete second sentence. Same column, sixth item: Should read, "**American Indian** uses would continue."

2. Page 6-13, column 2, paragraph 4, sentence 2: Should read, "If the well is not removed, it **will continue to provide livestock water for the unit, thereby alleviating possible** damage to soils and vegetation **caused by** cattle concentrating around **the unit's other** limited waters."

3. Page 6-19, column 2, paragraph 5 (Conclusion): Should read, "Under wilderness designation, livestock grazing use levels would **decrease because the growth of some woody species into grassland in BLU C would make less forage available for livestock. Reasonable** access . . ."

4. Page 6-21, column 1, partial sentence at top of column: Should read, ". . . naturalness, solitude, and primitive recreation in the unit **could** be diminished**, depending on level of use.**"

CHAPTER 9 REVISIONS

1. Page 9-1, column 1, second objective for interpretation: Should read, "To instill feeling, respect **and** love . . ."

2. Page 9-1, column 2, fourth objective for interpretation: Should read, "To develop **interpretive** materials . . ."

3. In Table 9-1, page 9-7, column 1 ("Management Prescriptions and Actions"), first entry: Should read, "Provide **hands-on** experience for young visitors." The same correction applies to the first entry on page 9-8.

CHAPTER 11 REVISIONS

1. Page 11-1, column 2, paragraph 3, sentence 2: Should read, "A particular BLU **has the potential to support** similar wildlife species, . . ."

2. Page 11-2, column 1, paragraph 3, sentence 2: Should read, "**The** NMDG&F manages . . ."

3. In Table 11-2 on page 11-6, third management prescription ("Protect species diversity"), first action: Should read, "**Protect** identifiable special use sites such as . . . mammal burrows, **living & dead** wildlife trees, **down trees,** down logs, prairie dog towns".

4. In Table 11-2 on page 11-7, second management prescription ("Protect hole-nesting wildlife"), first action: Should read, "**Retain living &** dead standing wildlife trees". Third action under the same management prescription: Should read, "Manage old growth to recruit **living & dead wildlife** trees for hole-nesting wildlife".

CHAPTER 12 REVISIONS

In Table 12-1 on page 12-5, fourth management prescription ("Protect pinon pine"), first action: Should read, "**Retain** selected mature live trees". Add as the second and third actions under the same management prescription, "**Retain selected dead standing & down trees**", and "**Retain down log habitat**".

CHAPTER 13 REVISIONS

1. In Table 13-3 on page 13-7, the second entry under the first heading, "Management for Information Potentia 1. Scientific Use": Should read, "*****Properties need not be **preserved** if appropriate research or data recovery is proposed."

2. Page 13-12, column 2: A fragment of text was omitted after the last line of existing text. It should read, ". . . **recognized, that is, areas in which illegal excavation is** . . ."

3. Page 13-5, column 1, paragraph 1, last sentence: "PaleoIndian" should read, "**Paleo-Indian**".

4. In Table 13-4 on page 13-16, column 1 ("Management Prescriptions and Actions"), second subentry under the heading, "Natural Deterioration": Should read, "**Through** aerial photointerpretation, . . ."

5. In Table 13-4 on page 13-17, column 1 ("Management Prescriptions and Actions"), first entry: Should read, "**Establish** & implement program . . ."

REVISIONS OF APPENDICES

1. The following revisions of Appendix B reflect several acquisitions and exchanges by the BLM of surface and mineral estate in the NCA since publication of the Draft GMP.

a. Page B-2, item 1: Should read, "About **49,600** acres of privately owned mineral estate underlying federally owned surface are **scattered through parts** of the NCA (refer to Map B-1)."

b. Page B-2, item 7: Should read, "An industrial park is being **developed on** private land . . ."

c. Page B-2, table at the bottom of page: Should read as follows,

Current Ownership (NCA) (December 1990)	Surface (acres)	Minerals (acres)
Federal	218,700	213,000
Private	43,100	49,600
Acoma	800	
TOTAL ACREAGE	262,600	262,600
Method of Protection Proposed		
Exchange or Fee Acquisition	10,000	49,600
Scenic and Conservation Easements	9,100	
Statutory Acreage Ceiling	None	
Funding Status		
Authorized Acquisition Ceiling		$4,000,000
Appropriated to Date		$2,250,000
Proposed for FY 1991		$1,250,000

d. Pages B-3 and B-4: The order of Maps B-1 and B-2 has been reversed, and the maps are reprinted as revised at the end of this chapter.

e. Page B-7, first item under "Priorities and Rationale," paragraph 2, sentence 3: Should read, "Mineral exchanges and fee **acquisitions have, in large part, been completed** with the principal subsurface landowners, . . ."

2. In Appendix G, the following two entries should be added to the list of reptiles on page G-14: "**prairie rattlesnake**; **Crotalus viridus**; **ACHIJK**; **rocky slopes, open**" and "**black-tailed rattlesnake**; **C. molossus**; **GHIJ**; **rocky, old dwellings**".

3. In Appendix J, the reference cited on page J-3: Should read, "**Krumpe** and Merigliano 1989."

4. In Appendix K, the reference cited on page K-22: Should read, "**De Bruin, Ellen H. 1988.**"

REVISIONS OF GLOSSARY

The following entries should be added to the Glossary:

Emlin method	A method of wildlife sampling that entails walking a predetermined line, counting the animals observed, and recording the distances from the line at which the animals are seen or flushed.
IHICS data base	The Integrated Habitat Inventory Classification System, a computer data base of wildlife species known to occur on BLM-administered lands.

REVISIONS OF REFERENCES

The following entries should be added to the list of References:

American Public Health Association. 1981. Standard Methods for the Examination of Water and Wastewater, 19th ed. Washington, D.C.

Marlatt, W.E., Riebau, A.R., Erickson, W.B., Sestak, M.L., and Smith, L.R. 1989. Baseline Wilderness Monitoring in the Bureau of Land Management. Paper presented at National Wilderness Management Conference, Minneapolis, MN, September 11-14, 1989.

Merigliano, Linda. 1987. The Identification and Evaluation of Indicators to Monitor Wilderness Conditions, MS Thesis. Wilderness Research Center, Department of Wildland Recreation Management, University of Idaho, Moscow, ID.

U.S. Department of the Interior, Bureau of Land Management. 1985. Technical Reference 4400-4: Rangeland Monitoring Trend Studies. Denver, CO.

U.S. Department of the Interior, Bureau of Land Management, Rio Puerco Resource Area. 1988. Cultural Resource Patrol and Surveillance Plan. Albuquerque, NM.

U.S. Department of the Interior, Bureau of Land Management, Rio Puerco Resource Area. 1990. Record of Decision and Range Improvement Maintenance Plan, Cebolla Wilderness. Albuquerque, NM.

U.S. Department of the Interior, Bureau of Land Management, Rio Puerco Resource Area. 1990. Record of Decision and Range Improvement Maintenance Plan, West Malpais Wilderness. Albuquerque, NM.

REPRINTED PAGES

The following tables and maps from the Draft GMP are reprinted in this Final GMP:

Table 1-1
Biophysical Land Units
in the El Malpais National Conservation Area

Table 1-3
Natural Capabilities and Limitations
of the BLUs for Wilderness Management

Map 2-1
Proposed Expansions of the El Malpais NCA Boundary for
Resource Protection and Facility Development

Map 2-2
Proposed BLM Developments in the El Malpais NCA

Map 5-5
Range Improvements in the West Malpais Wilderness Unit

Map 6-5
Range Improvements in the Chain of Craters Wilderness Study Unit

Map B-1
Private Minerals in NCA

Map B-2
Private Inholdings in NCA

Map B (oversize - map pocket)
Transportation System in the
El Malpais National Conservation Area and National Monument

In addition, Map C (oversize, also in map pocket) is included in this Final GMP. This map updates Map A (BLUs) from the Draft GMP, being based on more recent (1988) satellite data.

TABLE 1-1
BIOPHYSICAL LAND UNITS IN THE EL MALPAIS NATIONAL CONSERVATION AREA

BLU	Slope (%)	Soils	Vegetation	Surface Water/ Drainage	Acreage in NCA	% of NCA
A	1-10	Sandy clay loams	Grass-shrub	Playas	86,500	32
B	1-10	Sandy clay loams	Sparse-bare/grass shrub	Drainages/springs	2,800	1
C	3-50	Cobbly gravelly loams	Shrub-conifer	Small drainages	42,300	16
D	1-10	Lava	Shrub-conifer	No known surface water	6,300	2
E	1-3	Alkaline sandy clay loams	Sparse-bare/grass shrub	Marshy areas	3,300	1
F	1-12	Lava	Lava-lichen-shrub complex, grass-shrub, sparse-bare	Small pockets of standing water	5,000	1
G	1-10	Lava	Mixed conifer	Small pockets of standing water	9,500	3
H	10-50	Cobbly gravelly loams	Mixed conifer	Small drainages on slopes	43,500	16
I	<60	Cobbly sandy loams/ high erosion potential	Grass-shrub/shrub-conifer/mixed conifer	Large drainages on steep slopes/springs	41,400	15
J	<60	Cobbly clay loams	Grass-shrub/shrub-conifer/mixed conifer	Some drainages on steep slopes/springs	15,000	5
K	1-30	Volcanic & non-volcanic soils	Ponderosa-oak deciduous groves	No known surface water	5,600	2
L	1-10	Sandy clay loams, cobbly sandy loams	Sparse-bare	Drainages, playas	1,200	<1
		Areas with non-conforming landcover (do not fit BLU model because of surface disturbance)			700	1

TABLE

NATURAL CAPABILITIES AND LIMITATIONS OF

Natural Resources (BLUs)	Natural Capabilities and Limitations of the BLUs				
	Ability to Retain Naturalness			Ability to Provide Solitude	Ability to Provide Primitive Recreation
	Existing Plant Community	Landscape Complexity	VAC*	Social Setting	Recreation Features
A	Grass-shrub	Playas	10	Openness provides very little visual screening of other parties	Seasonal viewing of wildlife;
		Rabbitbrush			Seasonal viewing of wildlife; prey available for raptors; hunting opportunities
		Grass-shrub components			Seasonal viewing of wildlife; prey available for raptors; hunting opportunities
B	Sparse-bare, grass-shrub	Open terrain, gentle slopes, drainages (some w/perennial springs), erodible soils	8	Openness & sparse vegetation provides little visual screening of other parties	Prairie dog towns, abundant wildflowers, sunflowers, bee-plant, burrowing owls; waterfowl viewing; birdwatching; photography
		Deep soils			
C	Shrub-conifer	Highly varied terrain, steep-sided volcanic cones, hills, & ridges; forested areas of pinon-juniper & ponderosa pine, interspersed w/open meadows; understory of brush, aspen, & grasses	12	Low to moderate erosion; soils will accommodate recreational use by hikers & horseback riders	Primitive camping along margins of meadows & forest
				Good visual screening	Dead & down firewood available for camping
				Limited water	Wildlife viewing & hunting
				Accessible from CR 42 & primitive roads in Brazo subunit	Visual contrast between conifer & deciduous vegetation enhanced during spring & fall
D	Shrub-conifer	Forested areas of ponderosa pine, interspersed w/ meadows; understory of brush, aspen, oak, & grasses	12	Low to moderate erosion; soils will accommodate recreational use by hikers & horseback riders	Primitive camping along margins of meadows & forest
				Good visual screening	Dead & down firewood available for camping
				Limited water	Wildlife viewing & hunting
				Accessible by hiking or horseback riding in WMWU	Visual contrast between conifer & deciduous vegetation enhanced during spring & fall
E	No BLU E in wilderness units				
F	Lava-lichen, grass-shrub, sparse-bare	Rugged terrain; recent lava w/little soil development, sinkholes, high-angle lava walls	12	Rugged terrain provides screening beyond 1 mile at high points; expect frequent contact at developments	Visual contrast dramatic where lava meets sedimentary vertical cliffs; vegetation contrasts sharply w/black lava

1-3

THE BLUS FOR WILDERNESS MANAGEMENT

Natural Capabilities and Limitations of the BLUs		Management Considerations (Ecotype Representations)**		
Supplemental Values				
Wildlife	Geologic Features	CWU (Ac/%)	WMWU (Ac/%)	NCA (Ac/%)
12 species of waterfowl, 6 species of shorebirds; 5 species of amphibians; invertebrates Mule deer, pronghorn; pocket gophers; raptors; 3 species of sparrows, buntings Pronghorn, coyotes; jackrabbits, cottontails, prairie dogs, badgers, 5 species of mice; burrowing owls, golden eagles, 3 species of falcons, 4 species of hawks; roadrunners, horned larks, quail, dove, 3 species of flycatchers, thrashers, mockingbirds, cowbirds, 6 species of sparrows; 5 species of lizards, snakes	Rolling terrain characteristic of oldest lava flows in NCA; terrain develops on soft sedimentary rock (mudstone) of Cretaceous Age (165 million years); mudstone contains both marine & terrestrial fossils; marine fossils include oyster & ammonite shells	10,225 /16	19,380 /48	29,606 /11
Deer; voles; rails, 2 species of waterfowl, turkey; amphibians, reptiles Pocket gophers, 3 species of mice; burrowing owls, raptors; reptiles		1,792 /3	91 /.23	1,883 /.72
Mule deer, elk, coyotes; 3 species of rodents; 15 species of wintering birds, turkeys, 3 species of warblers, 3 species of flycatchers, 2 species of corvids, 2 species of wrens; snakes, lizards	Weathered lava flows w/pressure ridges, lava walls, & possibly older, collapsed, lava tubes; sedimentary rocks (sandstones & conglomerates); structures in rocks provide information about direction & strength of water deposition; internal structures give information about how rocks were formed, type of terrain providing deposited material, & direction of flow	3,786 /6	9,397 /23	13,183 /5
Mule deer, elk; Abert's squirrel; turkey, 12 species of wintering birds, insectivorous birds, corvids	Older weathered lava along margins of recent flows; large kipuka (island) surrounded by recent flows; recent tectonic activity has caused fracturing & faulting w/in kipuka (Big Hole in the Wall; ridges of Cretaceous sandstone where internal geometry shows ancient channel patterns	338 /.54	4,529 /11	4,868 /2
15 species of birds; 3 species of lizards	Well-preserved surface lava features; pressure ridges, collapse structures, & lava tubes	5 /.01	2,021 /5	2,026 /.77

TABLE 1-3

Natural Capabilities and Limitations of the BLUs

Natural Resources (BLUs)	Ability to Retain Naturalness			Ability to Provide Solitude	Ability to Provide Primitive Recreation
	Existing Plant Community	Landscape Complexity	VAC*	Social Setting	Recreation Features
G	Mixed conifer	Rugged terrain, intermediate age lava w/little soil development, sinkholes, high-angle lava walls; mixed conifer forest of mostly ponderosa pine w/some pinon-juniper & Douglas fir; understory of deciduous shrubs and grasses	12	Low to moderate erosion; soils will accommodate recreational use by hikers & horseback riders Visual screening allows for development of facilities w/limited visual impact Limited water Accessible from CR 42 & primitive roads in Brazo subunit	Primitive camping along margins of meadows & forest Dead & down firewood available for camping Wildlife viewing & hunting Visual contrast between conife & deciduous vegetation enhanced during spring & fall
H	Mixed conifer	Highly varied terrain, steep-sided volcanic cones, hills, & ridges; mixed conifer forest of various junipers, pinons, Douglas fir, & ponderosa pine, interspersed w/open meadows; understory of shrubs, aspen, oak, & grasses	12	Low to moderate erosion; soils will accommodate recreational use by hikers & horseback riders Good visual screening Limited water Accessible from CR 42 & primitive roads in Brazo subunit	Primitive camping along margins of meadows & forest Dead & down firewood available for camping Wildlife viewing & hunting Visual contrast between conife & deciduous vegetation enhanced during spring & fall
I	Grass-shrub, shrub-conifer, mixed conifer	Broken terrain w/variety of vegetation (conifers, grasses & shrubs); steep canyons & mesas; erodible soils	12	Variable terrain & vegetation provide visual screening	Broken terrain w/visual contrast between vegetation types; hunting opportunities; wildlife viewing
J	Ponderosa-Douglas fir, oak-shrub	Broken terrain; vibrant reds contrast w/greys; vegetation varies	12	Variable terrain & vegetation provide visual screening	Broken terrain, dramatic display of colors; visual contrast changes w/season; wildlife viewing
K	Ponderosa park-land, deciduous vegetation	Ponderosa parkland Patches of oak	12	Isolated patches not accessible to many people	Wildlife viewing

Notes: *VAC = Visual Absorption Capability. **CWU = Cebolla Wilderness Unit.
WMWU = West Malpais Wilderness Unit. NCA = National Conservation Area.

CONCLUDED

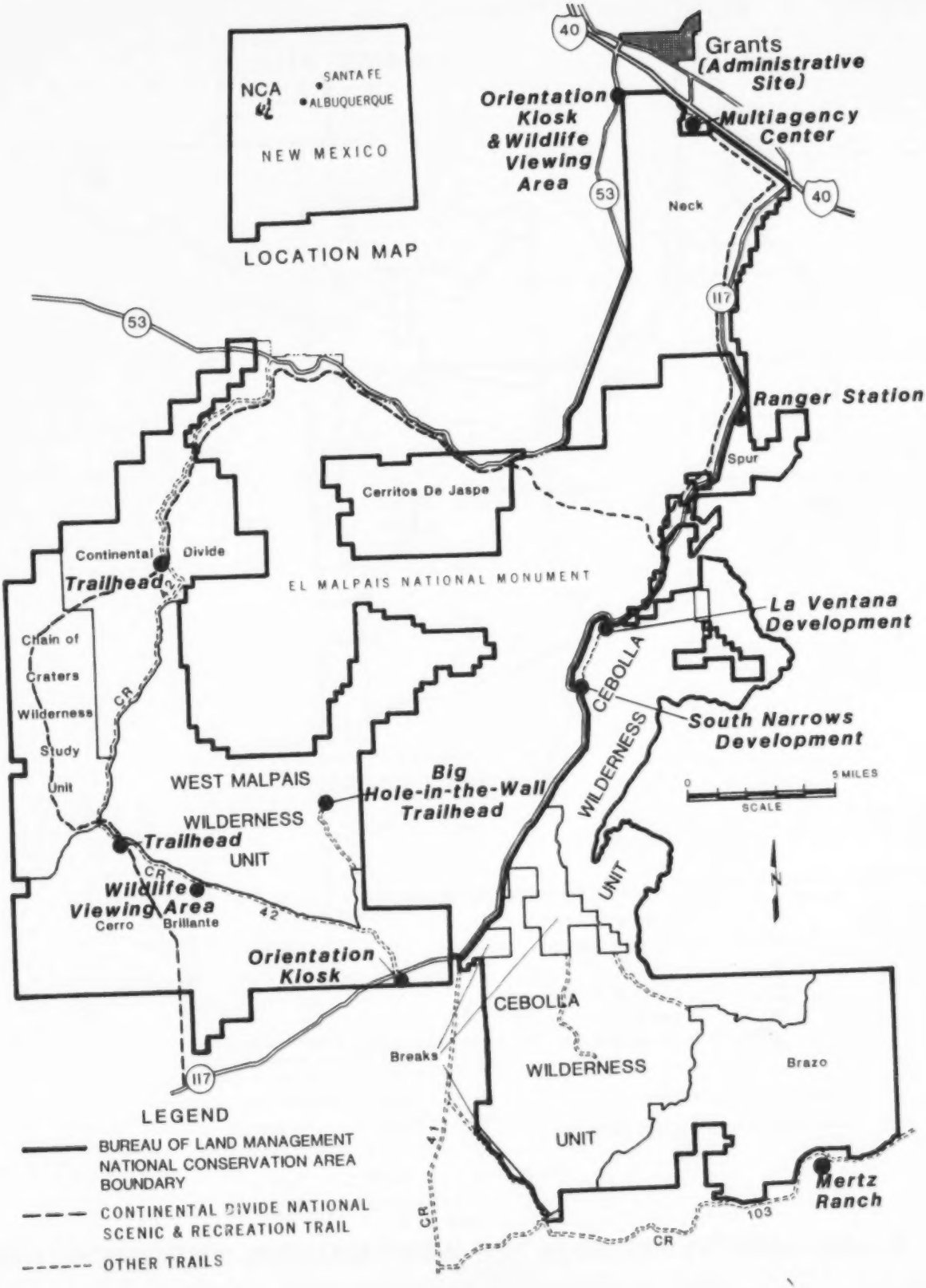
Natural Capabilities and Limitations of the BLUs		Management Considerations (Ecotype Representations)**		
Supplemental Values				
Wildlife	Geologic Features	CWU (Ac/%)	WMWU (Ac/%)	NCA (Ac/%)
Deer, elk, bear, bobcats, porcupine; raptors; hole-nesting mammals & birds; Abert's squirrel; Southern spotted owl (?); some bats	Lava flows intermediate in age between those of BLU A and BLU F; lava tubes & caves	788 /1	2,958 /7	3,746 /1
Deer, elk, bear, cougar, bobcat, porcupine; some raptors; 6 species of rodents, Abert's squirrel; turkey, migratory birds, warblers, Western bluebirds, hummingbirds; Southern spotted owl (?); some bats	Weathered lava walls & flows; sandstone w/internal channel geometry & current structures; carbonaceous mudstones w/plant debris	4,727 /8	1,695 /4	6,422 /2
Deer, elk, desert bighorn, cougar; small mammals & birds; some raptors; lizards	Sandstone w/internal channel geometry & current structures; carbonaceous mudstones w/plant debris	33,431 /54	40 /.1	33,470 /13
Deer, elk, bear, coyotes; invertebrates	Collapsed blocks of lava-capped sandstone & mudstone off edge of Cebollita Mesa create landslide deposits	4,371 /7	0	4,371 /2
Deer, bear; Abert's squirrel; hole-nesting mammals, & birds; many other kinds of birds, including warblers Deer, elk, bear; small mammals; turkey, 10 species of birds	Collapsed blocks of lava-capped sandstone & mudstone off edge of Cebollita Mesa create landslide deposits	2,815 /5	0	2,815 /1

Ac/% = acres and percent of BLU in unit;

MAPS

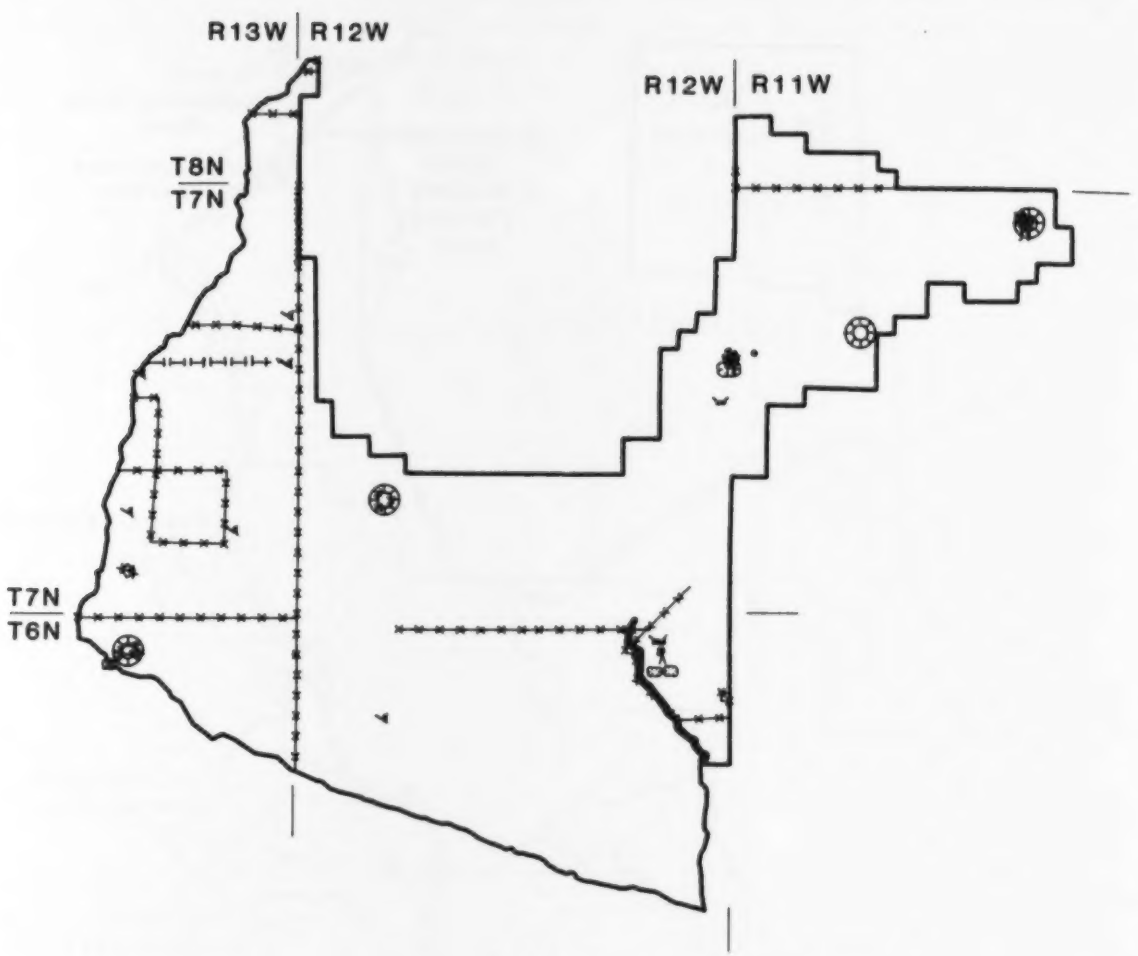
TRANSPOSED TO

END OF VOLUME



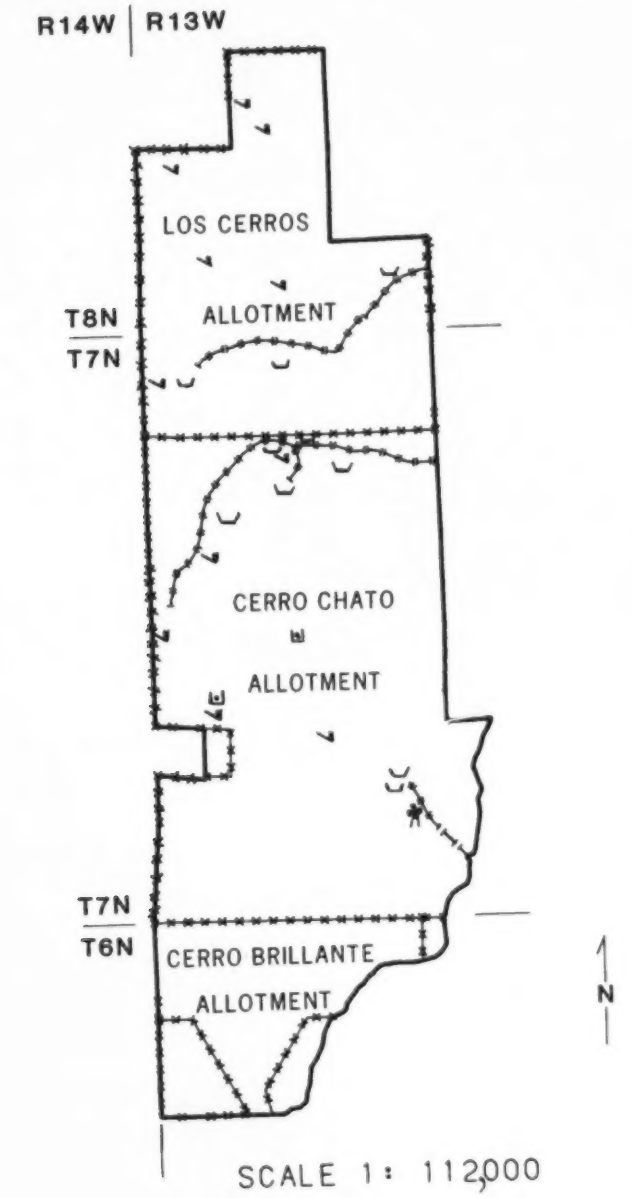
MAP 2-2

PROPOSED BLM DEVELOPMENTS IN THE EL MALPAIS NCA



MAP 5-5

RANGE IMPROVEMENTS IN THE WEST MALPAIS WILDERNESS UNIT



LEGEND

- CHAIN OF CRATERS WILDERNESS STUDY UNIT
- WATER PIPELINE
- FENCE
- EARTHEN TANK
- METAL TANK
- WILDLIFE EXCLOSURE
- WELLHEAD

MAP 6-5

RANGE IMPROVEMENTS IN THE CHAIN OF CRATERS WILDERNESS STUDY UNIT

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NOTE:

ADO	Albuquerque District Office, BLM
BLM-DSC	BLM-Denver Service Center
GFS	Grants Field Station, BLM
NMSO	New Mexico State Office, BLM
NPS-DSC	NPS-Denver Service Center
RPRA	Rio Puerco Resource Area, BLM

List Of Acronyms And Abbreviations

ACEC	Area of Critical Environmental Concern
AMP	Allotment Management Plan
ARPA	Archeological Resources Protection Act
AUM	Animal Unit Month (grazing)
BLM	Bureau of Land Management
BLU	Biophysical Land Unit
CDNST	Continental Divide National Scenic Trail
COC	Chain of Craters (Wilderness Study Unit)
CR	County Road
CU	Conservation Unit
CWA or CWU	Cebolla Wilderness Area or Unit
EA	Environmental Assessment
EIS	Environmental Impact Statement
FLPMA	Federal Land Policy and Management Act of 1976
FTE	Full-Time Equivalent (position)
GMP	General Management Plan
HMP	Habitat Management Plan
I	"Improve" (category: grazing allotment); Interstate (highway)
IHICS	Integrated Habitat Inventory Classification System (wildlife)
KGRA	Known Geothermal Resource Area
KGRF	Known Geothermal Resource Field
km	kilometer
LAC	Limits of Acceptable Change (monitoring system)
M	"Maintain" (category: grazing allotment)
MOU	Memorandum of Understanding
NCA	National Conservation Area
NM	New Mexico; National Monument
NMDG&F	New Mexico Department of Game and Fish
NPS	National Park Service
P	primitive (recreation opportunity)
PL	Public Law
PL100-225	Public Law 100-225, the El Malpais legislation
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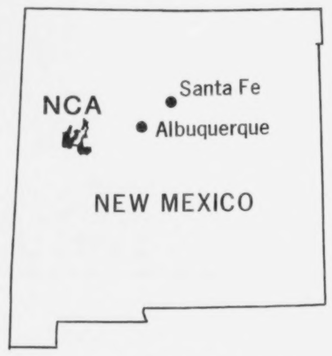
RIM Plan	Range Improvement Management Plan (wilderness areas)

RMP	Resource Management Plan
RN	roaded natural (recreation opportunity)
ROS	Recreation Opportunity Spectrum
ROW	Right-of-Way
RV	Recreational Vehicle
SCS	Soil Conservation Service
SMA	Special Management Area
SPM	semi-primitive motorized (recreation opportunity)
SPNM	semi-primitive non-motorized (recreation opportunity)
T	Township
TAC	Technology Applications Center (UNM)
UNM	University of New Mexico
USDA	U.S. Department of Agriculture
USDC	U.S. Department of Commerce
USDI	U.S. Department of the Interior
USFWS	U.S. Fish and Wildlife Service (also, FWS)
USFS	U.S. Forest Service (also, FS)
USGS	U.S. Geological Survey
VAC	visual absorption capability (landscape quality)
VRM	pqsvisual resources management (BLM program)
WMWA or WMWU	West Malpais Wilderness Area or Unit
WSA or WSU	Wilderness Study Area or Unit

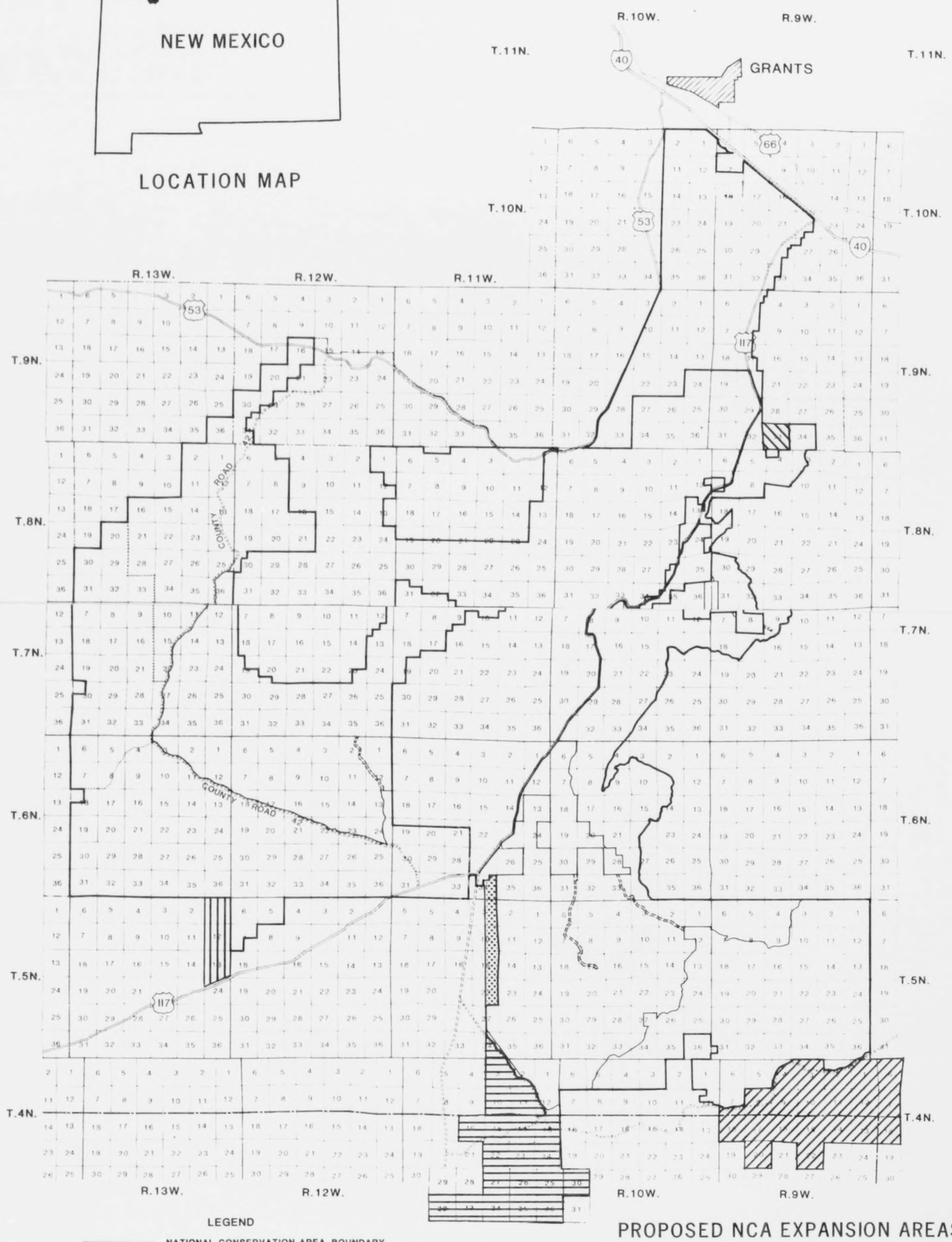
UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
Rio Puerco Resource Area
435 Montano N.E.
Albuquerque, NM 87107

OFFICIAL BUSINESS
Penalty for Private Use, $300

BULK RATE
POSTAGE AND FEES PAID
U.S. DEPARTMENT OF THE INTERIOR
PERMIT NO. G–76



LOCATION MAP



LEGEND

- NATIONAL CONSERVATION AREA BOUNDARY
- WILDERNESS UNIT BOUNDARY
- WILDERNESS STUDY AREA BOUNDARY

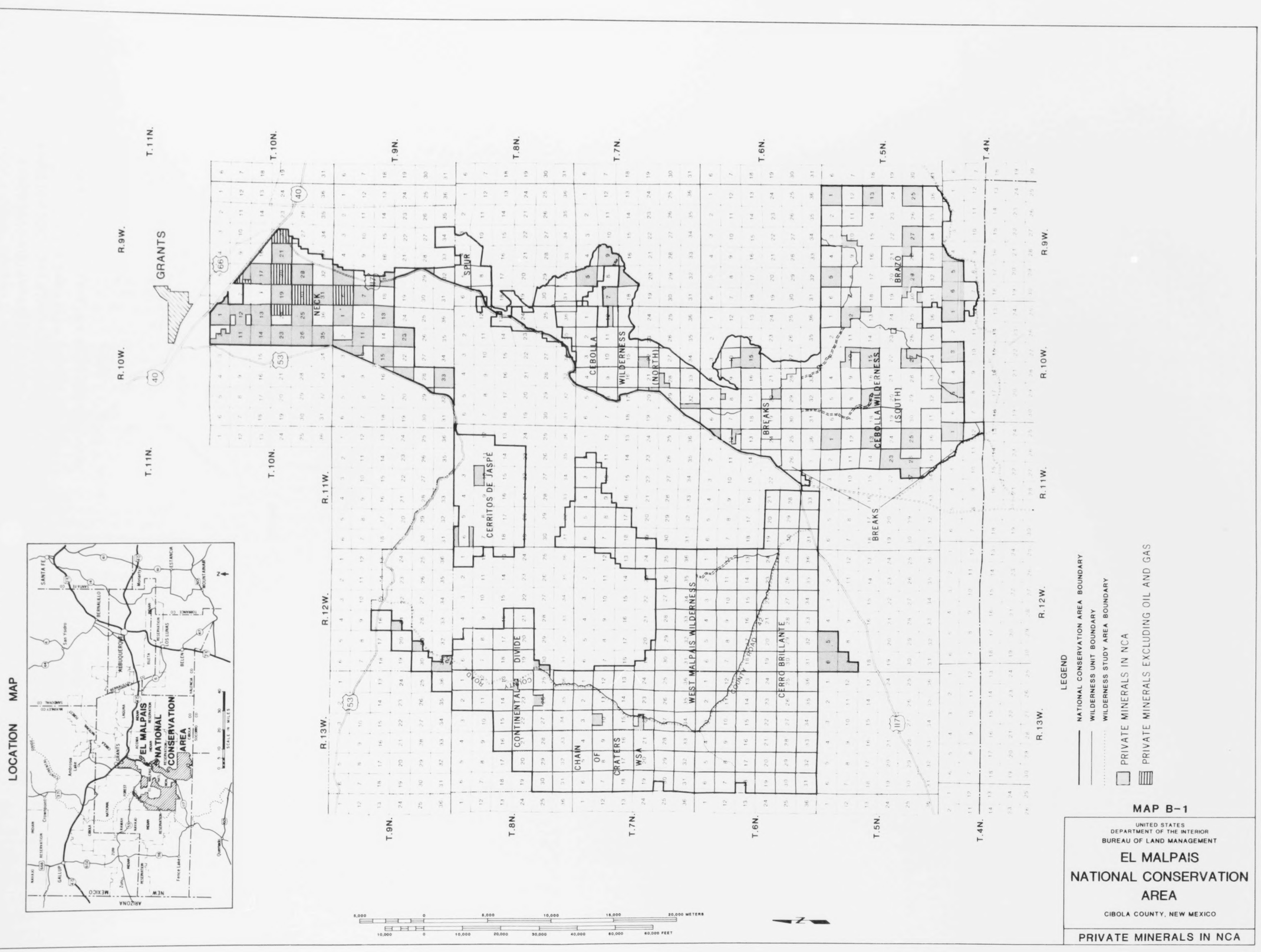
0 5 MILES
SCALE

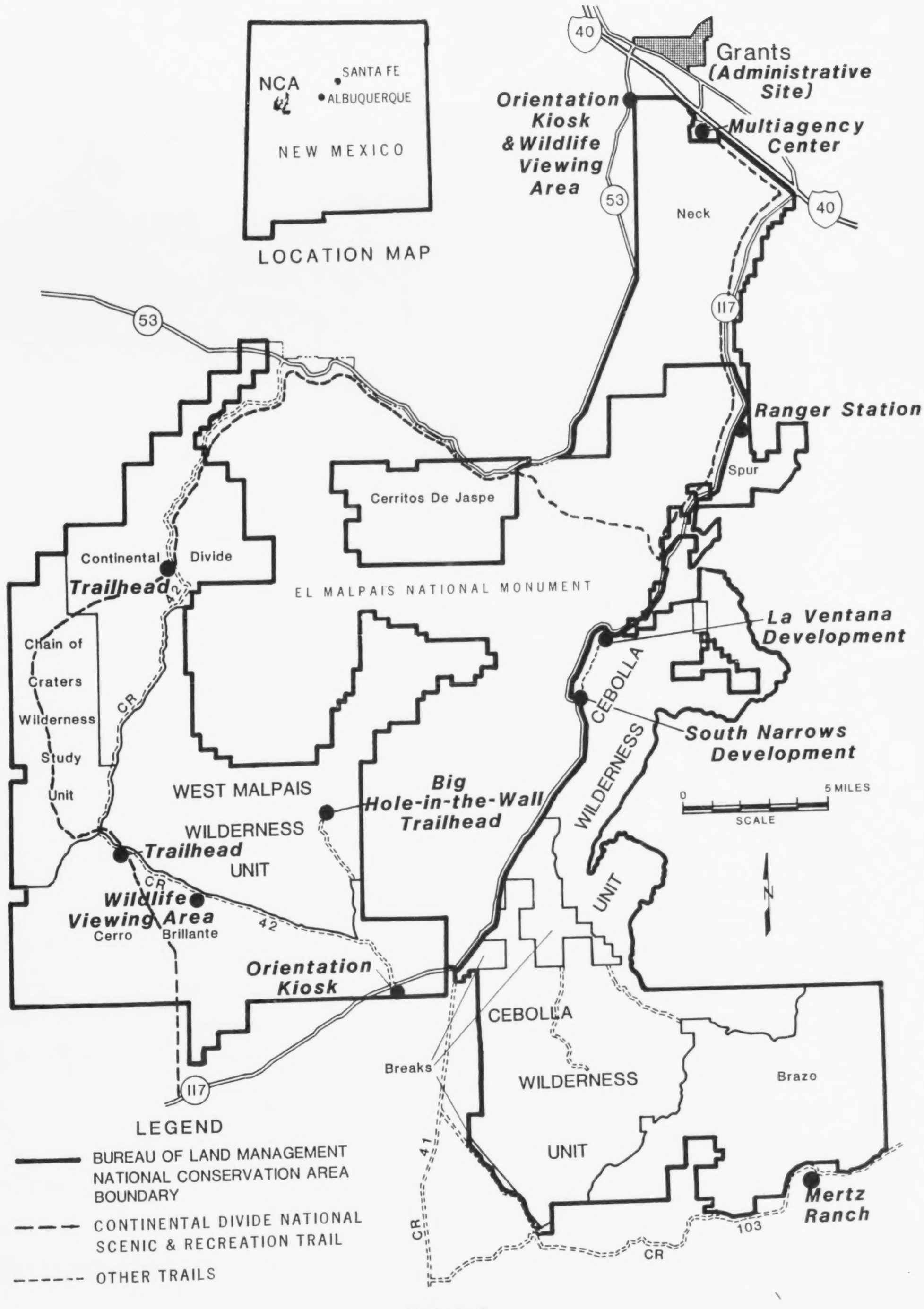
PROPOSED NCA EXPANSION AREAS

- CULTURAL SITE AT RANGER STATION
- EASEMENT TO DITTERT SITE AND HOMESTEAD CANYON
- TECHADO MESA AREA (Public land)
- TANK CANYON AREA (Public land)
- CONTINENTAL DIVIDE NATIONAL SCENIC TRAIL

MAP 2-1

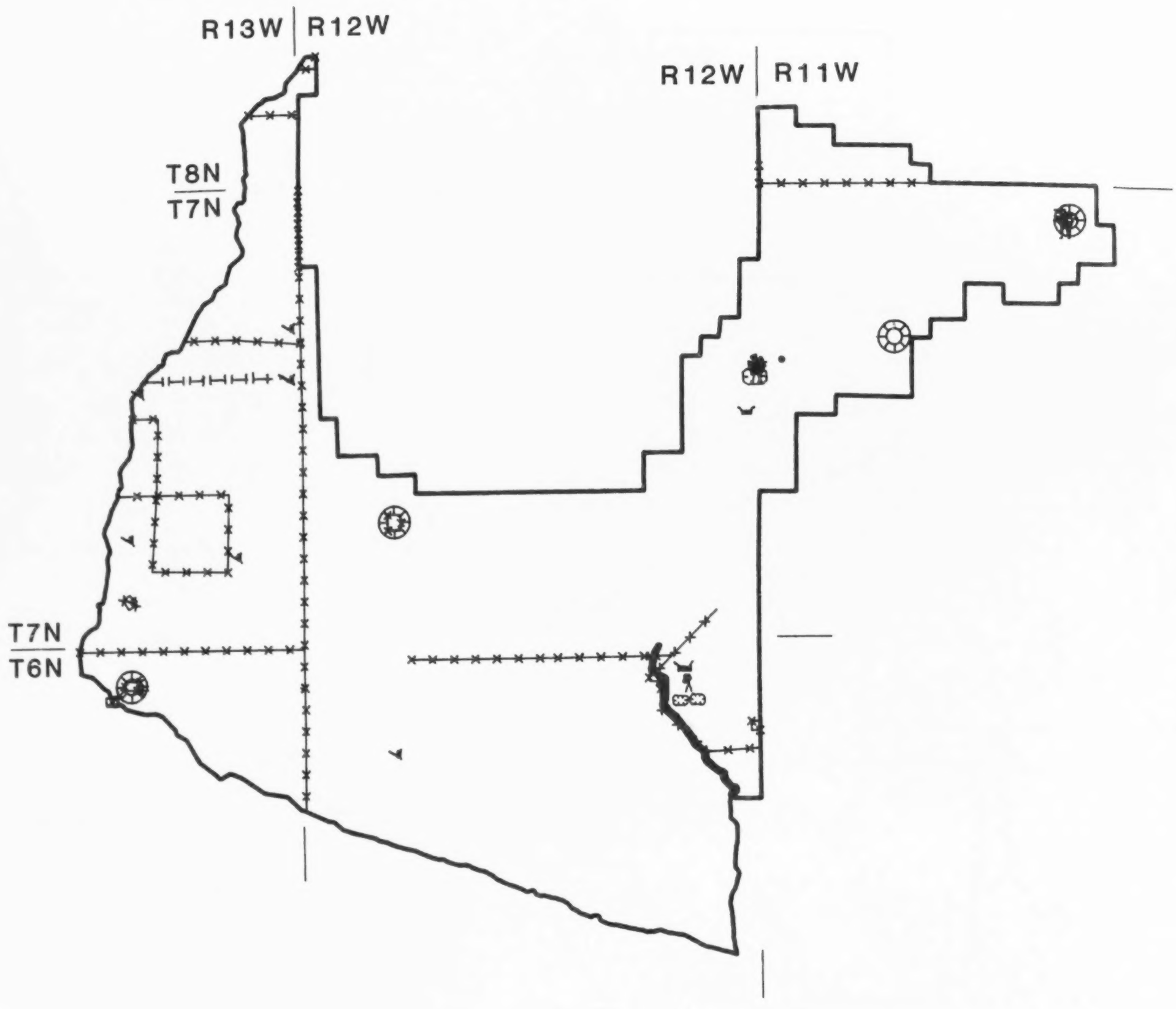
PROPOSED EXPANSIONS OF THE EL MALPAIS NCA BOUNDARY FOR RESOURCE PROTECTION AND FACILITY DEVELOPMENT


LOCATION MAP
SANTA FE
ALBUQUERQUE
GRANTS
EL MALPAIS NATIONAL CONSERVATION AREA
MEXICO
ARIZONA
NEW
T.11N.
T.10N.
T.9N.
T.8N.
T.7N.
T.6N.
T.5N.
T.4N.
R.9W.
R.10W.
R.11W.
R.12W.
R.13W.
GRANTS
NECK
SAUR
CIBOLA WILDERNESS (NORTH)
BRAZO
BREAKS
CIBOLA WILDERNESS (SOUTH)
CERRITOS DE JASPE
CONTINENTAL DIVIDE
CHAIN OF CRATERS WSA
WEST MALPAIS WILDERNESS
CERRO BRILLANTE
COUNTY ROAD
LEGEND
NATIONAL CONSERVATION AREA BOUNDARY
WILDERNESS UNIT BOUNDARY
WILDERNESS STUDY AREA BOUNDARY
PRIVATE MINERALS IN NCA
PRIVATE MINERALS EXCLUDING OIL AND GAS
MAP B-1
UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
EL MALPAIS
NATIONAL CONSERVATION
AREA
CIBOLA COUNTY, NEW MEXICO
PRIVATE MINERALS IN NCA



MAP 2-2

PROPOSED BLM DEVELOPMENTS IN THE EL MALPAIS NCA



SCALE 1: 150000

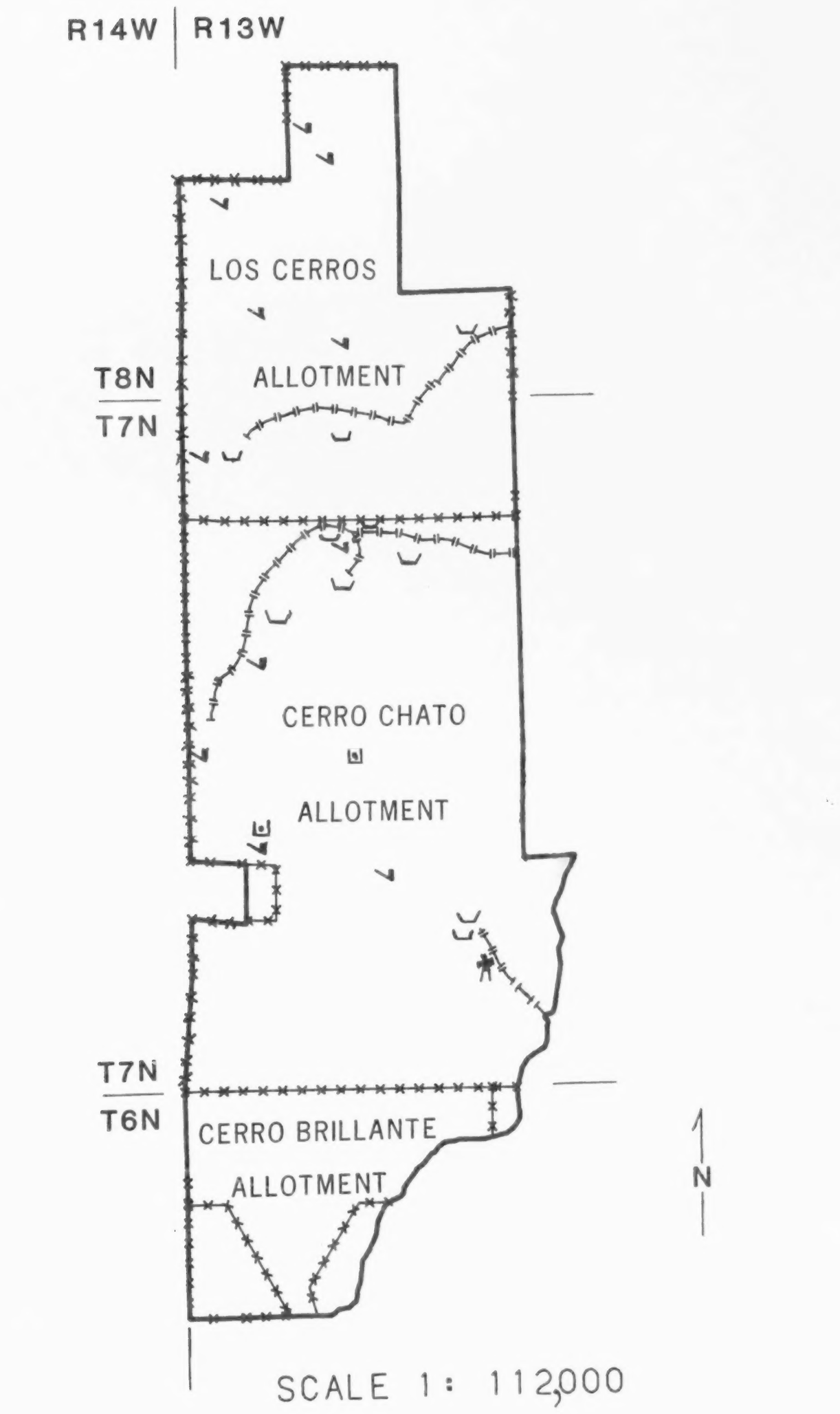
LEGEND

- WEST MALPAIS WILDERNESS UNIT
- WILDLIFE WATER
- EARTHEN TANK
- TREND PLOT
- CATTLEGUARD
- CORRAL
- WINDMILL
- METAL TANK
- FENCE
- WATER PIPELINE

N

MAP 5-5

RANGE IMPROVEMENTS IN THE WEST MALPAIS WILDERNESS UNIT



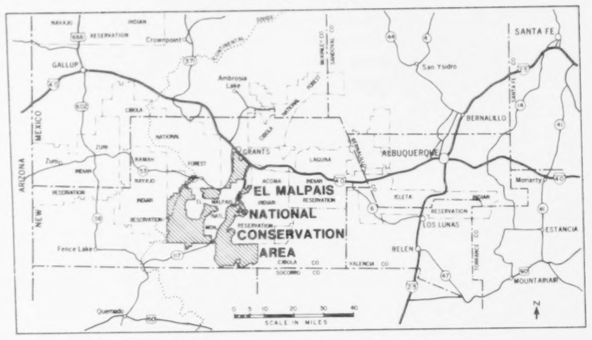
LEGEND

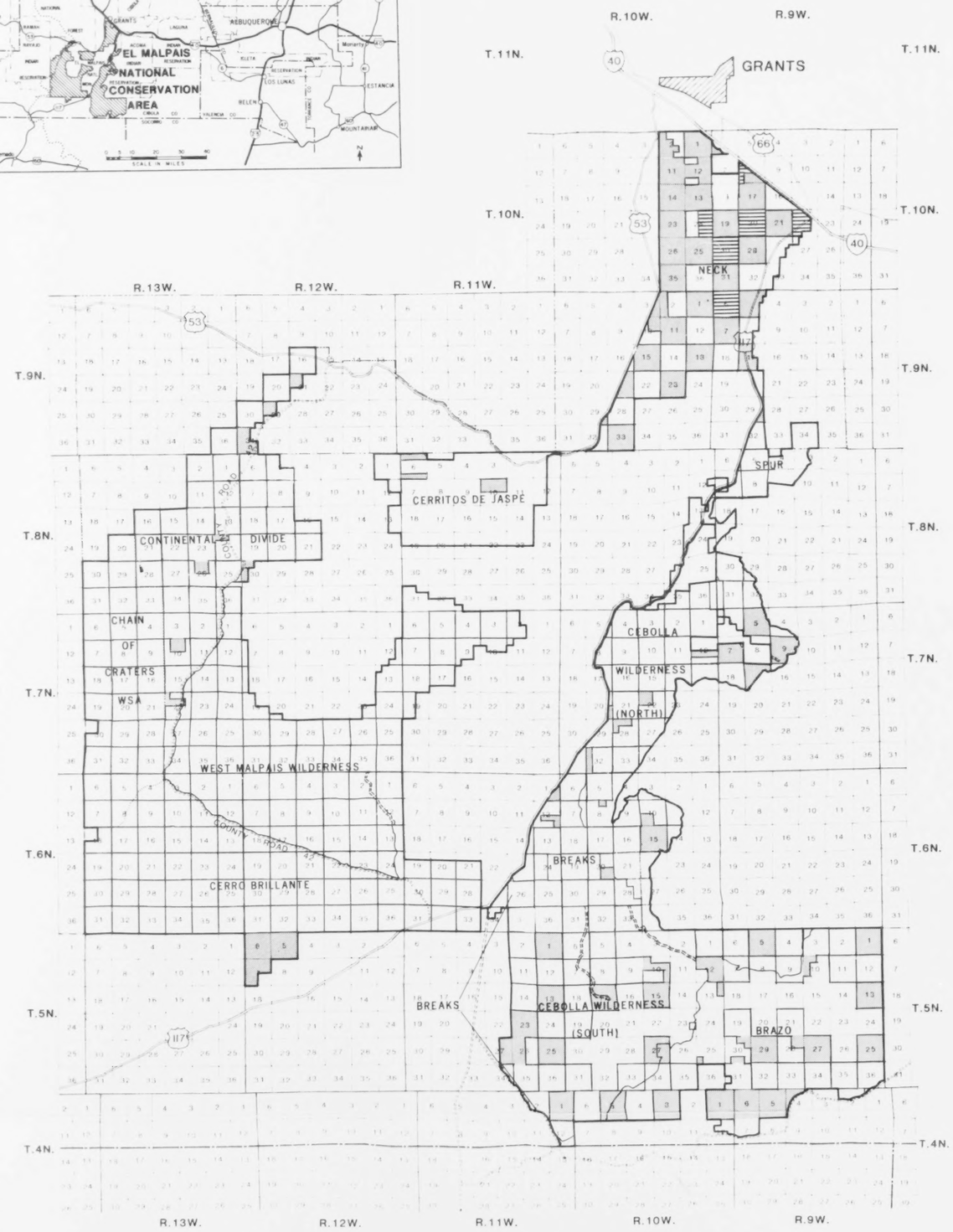
- CHAIN OF CRATERS WILDERNESS STUDY UNIT
- WATER PIPELINE
- FENCE
- EARTHEN TANK
- METAL TANK
- WILDLIFE EXCLOSURE
- WELLHEAD

MAP 6-5

RANGE IMPROVEMENTS IN THE CHAIN OF CRATERS WILDERNESS STUDY UNIT

LOCATION MAP





LEGEND

- NATIONAL CONSERVATION AREA BOUNDARY
- WILDERNESS UNIT BOUNDARY
- WILDERNESS STUDY AREA BOUNDARY
- PRIVATE MINERALS IN NCA
- PRIVATE MINERALS EXCLUDING OIL AND GAS

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

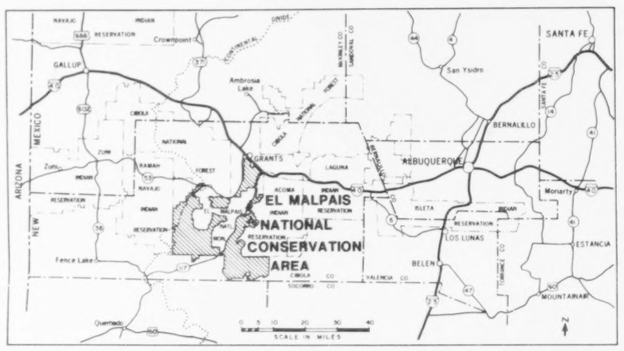
EL MALPAIS NATIONAL CONSERVATION AREA

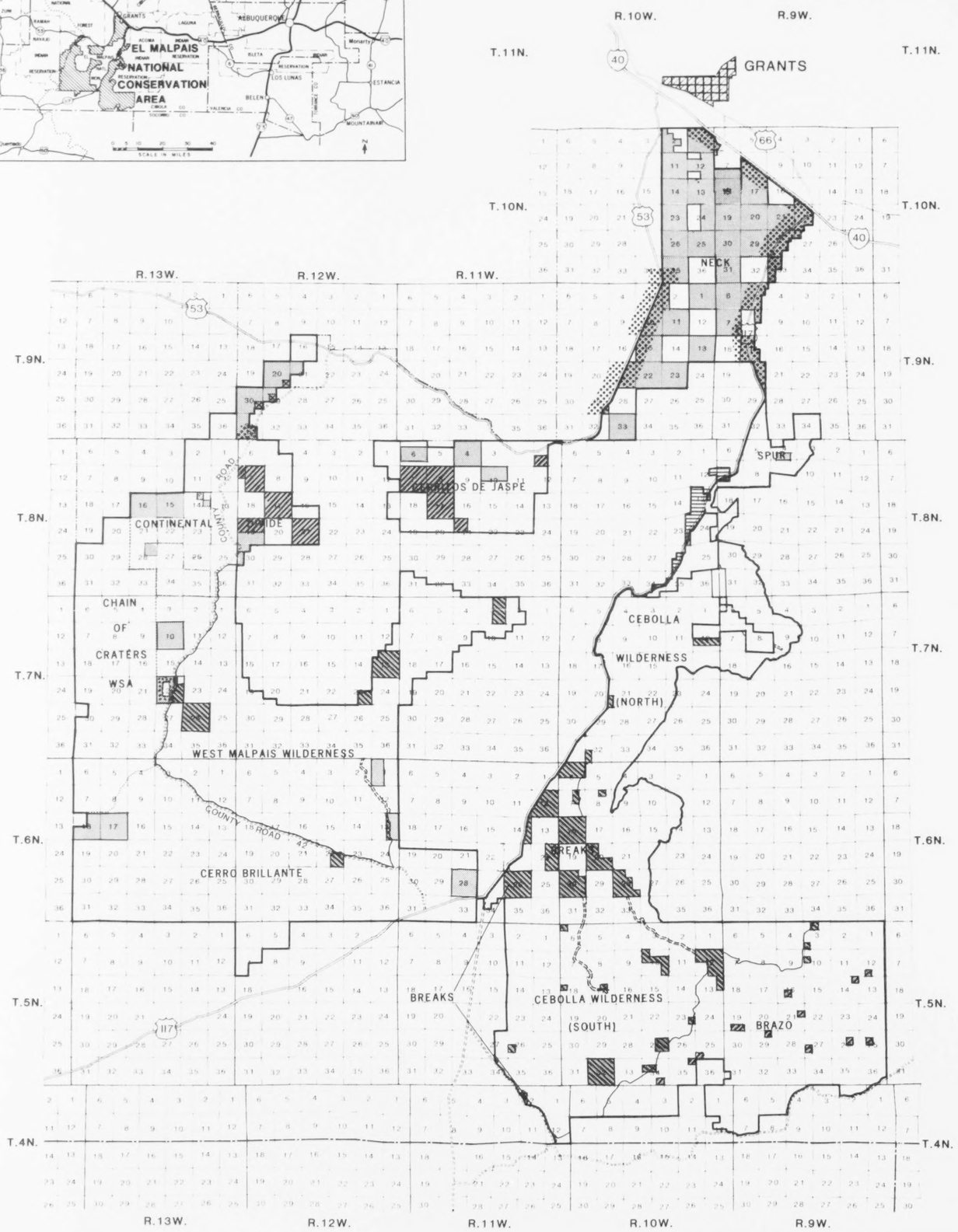
CIBOLA COUNTY, NEW MEXICO

MAP B-1

PRIVATE MINERALS IN NCA

LOCATION MAP





LEGEND

- NATIONAL CONSERVATION AREA BOUNDARY
- WILDERNESS UNIT BOUNDARY
- WILDERNESS STUDY AREA BOUNDARY
- PRIVATE INHOLDINGS IN NCA

PRIORITIES FOR PROTECTION/ACQUISITION

1. PRIVATE MINERALS (See Map B-1
2. WILDERNESS INHOLDINGS AND EDGE HOLDINGS
3. SCENIC AND/OR CONSERVATION EASEMENTS
4. ACOMA EXCHANGE
5. RESOURCE PROTECTION/FACILITY DEVELOPMENT
6. NPS PROTECTION NEEDS (Others may be identified in the NPS GMP)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

EL MALPAIS NATIONAL CONSERVATION AREA

CIBOLA COUNTY, NEW MEXICO

PRIVATE INHOLDINGS IN NCA

MAP B-2

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NOTE:

ADO	Albuquerque District Office, BLM
BLM-DSC	BLM-Denver Service Center
GFS	Grants Field Station, BLM
NMSO	New Mexico State Office, BLM
NPS-DSC	NPS-Denver Service Center
RPRA	Rio Puerco Resource Area, BLM

List Of Acronyms And Abbreviations

ACEC	Area of Critical Environmental Concern
AMP	Allotment Management Plan
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El 6/4

El Malpais National Conservation Area and National Monument

MAP C

Biophysical Land Units (BLU)

- Areas with Non-Conforming Landcover *
- BLU A
- BLU B
- BLU C
- BLU D
- BLU E
- BLU F
- BLU G
- BLU H
- BLU I
- BLU J
- BLU K
- BLU L

Grants

EL MALPAIS NATIONAL MONUMENT

Cerritos de Jaspe (CU)

Continental Divide (CU)

CHAIN OF CRATERS WSA

WEST MALPAIS WILDERNESS

Bandera Volcano (CU)

CEBOLLA WILDERNESS (NORTH)

CEBOLLA WILDERNESS (SOUTH)

Breaks (CU)

Brazo (CU)

County Road 42

LOCATION MAP

MAP AREA

SANTA FE

ALBUQUERQUE

NEW MEXICO

LEGEND

- NATIONAL CONSERVATION AREA BOUNDARY
- WILDERNESS UNIT BOUNDARY
- WILDERNESS STUDY AREA BOUNDARY
- EL MALPAIS NATIONAL MONUMENT BOUNDARY
- (CU) CONSERVATION UNIT

2 0 2 4 6 8 10 MILES

BLM-NM-PT-91-002-4333

I 53.2:

BIOPHYSICAL LAND UNITS

Biophysical Land Unit A (shown in yellow on Map C)

BLU A terrain consists of low rolling hills, shallow valleys, and slopes of no more than 10 percent. This landform has developed predominantly from the weathering of old lava flows and smaller areas of a soft, sedimentary rock called mudstone. Visually, the undulating and fluid lines of the rolling hills create a sense of openness that is accentuated by the low growing vegetation. The 20 SCS soil classes included in BLU A are all cobbly loams, with sandy or clayey components.

Vegetation types are grasses and shrubs, with blue grama (in sod form) and sage throughout the BLU. Other grasses include sand dropseed, bluestem wheatgrass, western wheatgrass, and galleta in some areas. Fringed sage is the most common sage, but at least three species occur in the BLU. Other common shrubs found in BLU A are horsebrush, snakeweed, and rubber rabbitbrush. Common forbs include kochia, mallow, and aster species.

Numerous playas are an important component of BLU A. They have developed on one of the oldest lava flows in the NCA in areas of numerous, small, closed drainage basins where seasonal surface water collects.

Biophysical Land Unit B (shown in blue hatching on Map C)

BLU B is formed of numerous fan terraces, drainages, and flat floodplains, all of which tend to have very little slope. Large areas of BLU B are concentrated at the mouths of canyons and slopes where material is being deposited and eroded.

The flat and low-lying uniform slopes and sparse vegetation provide little visual contrast. However, in late wet summers following seasonal rains, the open floodplains create a setting for blankets of yellow sunflowers.

BLU B contains three sandy clay loam soils that are susceptible to erosion. These soils are derived from sandstones and mudstones. Vegetation of this BLU is similar to that of BLU A, but cover is often more sparse or bare, especially in dry years.

Biophysical Land Unit C (shown in green on Map C)

BLU C terrain is commonly the large angular southern and southwestern slopes and shoulders of hills and buttes of the NCA that range from 6,800 to 7,100 feet in elevation. In the western and northern portions of the NCA where volcanic activity has built up a high plain, the hills are composed of lava flows and volcanic debris. In the eastern portion, hills and buttes have developed from faulting and fracturing of sandstones and mudstones.

Varied landforms and vegetation create visual contrast in form, line, color, and texture. Slopes vary from 3 to 50 percent, and the potential for erosion of the soils on these slopes is low to moderate. Drainages follow the terrain of the steeper slopes. The 27 SCS soil classes in this BLU are cobbly, gravelly loams.

The shrub-conifer vegetation of BLU C is characterized by pinons and oneseed junipers with an understory of blue grama (in sod form), snakeweed, rabbitbrush, and horsebrush. Tree clusters tend to be scattered in meadows of understory. These clusters may vary from 10 to 30 feet in diameter, with the meadows being at least twice the diameter of tree clusters. An occasional ponderosa pine may be found at the edge or upper elevations of BLU C.

Biophysical Land Unit D (shown in bright blue on Map C)

BLU D is composed of old lava flows. The terrain in BLU D is structurally low and rolling, similar to that in BLU A, but the landscape form is less expansive, and the textures are very coarse and uneven because of the vegetation. Slopes range generally from 1 to 10 percent.

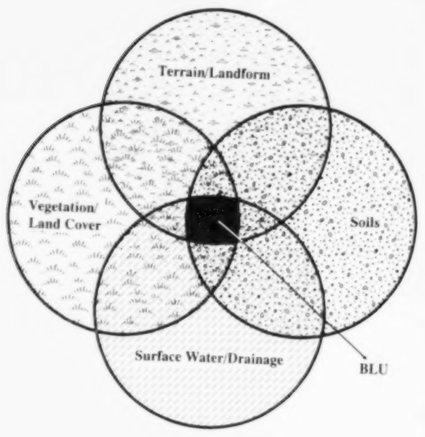
The soils of BLU D are all volcanic. No natural surface waters are known to occur in this BLU.

Vegetation clusterings are similar to those of BLU C, but the predominant tree species is ponderosa rather than pinon and juniper. Apache plume and oak are found in the understory, along with snakeweed, rabbitbrush, and horsebrush. Hymenopappus, found on all volcanic soils, occurs in BLU D.

Biophysical Land Unit E (shown in red hatching on Map C)

BLU E is characterized by the flat terrain of an ancient lakebed in the Neck subunit of the NCA. The lake may have formed during a period of wetter climate (i.e., the Pleistocene Era) when more surface water could collect. The open, flat terrain creates a strong, horizontal visual component and provides panoramic vistas of the surrounding landscape.

The soils of BLU E are composed of lakebed sediments. Typical vegetation is alkali grass and blue grama in sod form. Small areas of water stand year-round in this BLU, with cattails and sedges growing in them. The water is discharged from Ojo de Gallo Spring, which occurs on private land near San Rafael.



Biophysical Land Unit F (shown in black hatching on Map C)

BLU F terrain is comprised of the broken ridges and depressions of the most recent lava flow in the region, McCarty's Flow. The rough and chaotic lines of broken lava may change to smooth, undulating flows within short distances. Slopes range from 1 to 12 percent.

Exposed lava rock dominates the landcover, but a variety of vegetation is present. The most common vegetation in this BLU is lichen, more than 70 species of which have been identified. Cacti, Apache plume, goldeneye, and little bluestem are also common, with a large variety of forbs and shrubs found in low numbers. Ponderosa pine (some of which is stunted and misshapen), New Mexico olive, and juniper are widely scattered. The rugged texture of the lava surface contrasts dramatically with delicate pockets of vegetation.

Water can be found standing in lava depressions in wet years. In some lava tubes and caves, water and ice occur year-round.

Biophysical Land Unit G (shown in purple hatching on Map C)

BLU G terrain is comprised of the flat to broken ridges and depressions of old lava flows, with slopes generally at 1 to 10 percent. The lava flows of BLU G are considered to be younger than those comprising BLU A, but older than those of BLU F.

Varied landforms create strong visual contrasts in form, line, color, and texture. Soils are old basalt and cobbly loam over basalt.

The landcover is dominated by a forest that is nearly all ponderosa pine, with some Douglas fir. Oak, currant, and Apache plume form the typical understory. Clusters of aspen occur near the edges of the lava flows. Muttongrass, mountain muhly, pine dropseed, and blue grama are common grasses. Sage is found everywhere.

As in BLU F, water can be found standing in the lava depressions of BLU G in wet years. Water and ice occur year-round in some lava tubes and caves.

Biophysical Land Unit H (shown in purple on Map C)

BLU H terrain is dominated by the large forms of the northern and northwestern slopes and shoulders of hills and buttes, at elevations of 6,800 to 7,100 feet. In the western and northern portions of the NCA where volcanic activity has built up a high plain, the hills are composed of lava flows and volcanic debris. In the eastern portion, hills and buttes have developed from faulting and fracturing of sandstones and mudstones.

As in BLU G, varied landforms and vegetation create strong visual contrasts. The slopes of BLU H vary frequently within the range of 10 to 50 percent. The soil groups are cobbly, gravelly loams with low to moderate erosion potential. Naturally occurring drainages may follow the steeper slopes.

The vegetation of BLU H is a true mixed conifer woodland of pinon, oneseed juniper, alligator bark juniper, ponderosa, and an occasional Douglas fir. The understory consists of oak, currant, mountain mahogany, rabbitbrush, sage, and snakeweed. Grasses include pine dropseed, muttongrass, Junegrass, mountain muhly, and blue grama in sod form.

Biophysical Land Unit I (shown in red on Map C)

BLU I terrain is a complex mix of ridges, buttes, and mesas that occur mostly on the east and north sides of the NCA. The buttes and mesas are large, flat-topped, usually rectangular hills, with nearly vertical sides and accumulated rubble at the bases. These landforms developed from sedimentary rocks broken by a series of north- to northeast-trending faults. The rubble consists of landslide deposits that developed along a major, retreating fault slope represented by the sandstone cliffs of Cebollita Mesa. Many steep drainages cut through the landscape.

In a range of slopes up to 60 percent, the terrain features of BLU I comprise a very high frequency of change in landscape structure and form. The five SCS soil classes of BLU I are highly erodible. Vegetation varies from grass-shrub (typified by blue grama in sod form, sage, rabbitbrush, horsebrush) to pinon juniper woodland and stands of ponderosa.

Biophysical Land Unit J (shown in light blue on Map C)

BLU J is similar to BLU I, except the soils of BLU J are moderately erodible. The ridges and buttes are composed of limestones and sandstones with valleys between individual ridges. The broken terrain of rock outcrop creates a dramatic visual contrast with the vegetated slopes; this contrast is accentuated during fall and spring.

The soils of BLU J are different from those in BLU I, and are of low to moderate erosion potential. Steep drainages follow the dominant slopes. The vegetation varies from grass-shrub (typified by blue grama in sod form, and sages) to a mixed conifer woodland of pinon, juniper, and ponderosa.

Biophysical Land Unit K (shown in black on Map C)

BLU K is a land unit dominated by vegetative attributes. Generally, however, the terrain is open form landscape, including portions of the slopes and tops of cinder cones and some mesas. No natural surface waters occur in this BLU. This ecotype tends to be located on old volcanic soils, or along the interface of volcanic and non-volcanic soils.

BLU K vegetation is composed of ponderosa parkland, ponderosa/oak/deciduous complex, and pure deciduous groves. Ponderosa parkland is characterized by mature ponderosas (50 + years old), standing wide apart in grassy meadows. Most of the ponderosa parkland in the NCA is being invaded by young trees and shrubs.

Deciduous groves are often found in combination with patches of parkland meadows. Sometimes the groves form an understory that is growing into the parkland meadows, thus forming a ponderosa-shrub complex. Deciduous groves are typically oak on older slopes and aspen along the edges of newer lava flows.

Biophysical Land Unit L (shown in orange on Map C)

BLU L is formed of fan terraces, drainages, flat floodplains, and playas that can be found both in low-lying areas and on flat mesa tops. These terrain forms have very little slope, with the greatest extreme to no more than 10%.

The soils of BLU L are of low to moderate erosion potential, being composed of sandy clay loams and cobbly sandy loams. In wet years, transient standing water may be present. This water provides some visual contrast in an otherwise flat and open terrain.

The vegetation of BLU L is sparse to bare, and consists of grasses, forbs, and some sage. Grasses can include blue grama (in sod form), sand dropseed, bluestem wheatgrass, and some galleta. Of the three sages found in the NCA, the most common in BLU L is fringed sage. Common forbs include kochia, mallow, and aster species. Combined with the nature of its other biophysical components, BLU L's vegetation is extremely sensitive to climatic variation and surface disturbance.

Sources for BLUs: Landsat Thematic Mapper 6/88 (Vegetation/Landcover); USGS Digital Elevation Models, 1:100,000 and 1:24,000, 1989 (Terrain); Soil Conservation Service Soils Atlas, 1:24,000, 1983-86 (Soils); USGS Digital Line Graphs, 1:100,000, and BLM field inventory data, 1:24,000, 1984-89 (Surface Water).

Sources for Boundaries, Roads, Place Locations: USGS 1:100,000 Topographic Maps.

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BIOPHYSICAL LAND UNITS IN THE EL MALPAIS NATIONAL CONSERVATION AREA

BLU	Slope (%)	Soils	Vegetation	Surface Water/ Drainage	Acreage in NCA	% of NCA
A	1-10	Sandy clay loams	Grass-shrub	Playas	86,500	32
B	1-10	Sandy clay loams	Sparse-bare/grass shrub	Drainages/springs	2,800	1
C	3-50	Cobbly gravelly loams	Shrub-conifer	Small drainages	42,300	16
D	1-10	Lava	Shrub-conifer	No known surface water	6,300	2
E	1-3	Alkaline sandy clay loams	Sparse-bare/grass shrub	Marshy areas	3,300	1
F	1-12	Lava	Lava-lichen-shrub complex, grass-shrub, sparse-bare	Small pockets of standing water	5,000	1
G	1-10	Lava	Mixed conifer	Small pockets of standing water	9,500	3
H	10-50	Cobbly gravelly loams	Mixed conifer	Small drainages on slopes	43,500	16
I	<60	Cobbly sandy loams/high erosion potential	Grass-shrub/shrub-conifer/mixed conifer	Large drainages on steep slopes/springs	41,400	15
J	<60	Cobbly clay loams	Grass-shrub/shrub-conifer/mixed conifer	Some drainages on steep slopes/springs	15,000	5
K	1-30	Volcanic & non-volcanic soils	Ponderosa-oak/ deciduous groves	No known surface water	5,600	2
L	1-10	Sandy clay loams, cobbly sandy loams	Sparse-bare	Drainages, playas	1,200	<1
		Areas with non-conforming landcover (do not fit BLU model because of surface disturbance)			700	<1

TRANSPORTATION SYSTEM IN THE EL MALPAIS NATIONAL CONSERVATION AREA AND NATIONAL MONUMENT

MAP B
(REVISED)

LEGEND

- NATIONAL CONSERVATION AREA BOUNDARY
- WILDERNESS UNIT BOUNDARY
- WILDERNESS STUDY AREA BOUNDARY
- EL MALPAIS NATIONAL MONUMENT BOUNDARY
- (CU) CONSERVATION UNIT
- PAVED ROAD
- GRAVEL OR GRADED ROAD
- PRIMITIVE ROAD
- AUTHORIZED USE ONLY (PROPOSED)
- CONTINENTAL DIVIDE TRAIL (PROPOSED)
- TRAIL